THE LANCET

Offices : 7, ADAM STREET, ADELPHI, W.C.2.

Telegrams: LANCET, WESTRAND. LONDON. Telephone: TEMPLE BAR 7228 and 7229.

No. XXI. OF VOL. II., 1931. LONDON, SATURDAY, NOVEMBER 21, 1931. Pp.128 —Price 1s.
No. 5647. Vol. CCXXI. Founded 1823. PUBLISHED WEEKLY. Registered as a Newspaper. Annual Subscription: Inland £2 2s. Abroad £2 10

HOW TO TREAT EMERGENCIES.

MEDICAL.—By CHAS. NEWMAN, M.D., M.R.C.P., Jun. Physician, King's College Hospital. 8s. 6d.
SURGICAL.—By W. H. C. ROMANIS, M.B., F.R.C.S. and PHILIP H. MITCHINER, M.D., F.R.C.S., Surgeons, St. Thomas's Hospital. 158 Illus. 18s.
London: J. & A. Churchill, 40, Gloucester-pl., Portman-sq., W.1

ALLERGY AND APPLIED IMMUNOLOGY.
By WARREN T. VAUGHAN, M.D.
Royal octavo. 359 pages, illustrated. Cloth.
Price 21s. net.
Henry Kimpton, 263, High Holborn, London, W.C.1.

BY KENNETH M. WALKER, F.R.C.S., M.A., M.B., B.C.

DISEASES OF THE MALE ORGANS OF GENERATION.
Pp. 246. Coloured Plate and 78 Illustrations. 12s. 6d. net.
THE ENLARGED PROSTATE.
Pp. 212. Coloured Plate and 59 Illustrations. 12s. 6d. net.
MALE DISORDERS OF SEX, 5s. net. (Jonathan Cape.)
Oxford University Press. Amen House, London, E.C.4.

Large 8vo. With 71 Fully Coloured Cystoscopic Appearances, many Pyelograms, and other Illustrations. 25s. net. Postage 9d.

CYSTOSCOPY. A THEORETICAL AND PRACTICAL HANDBOOK. By JAS. B. MACALPINE, F.R.C.S., Hon. Surg. and Surg.-in-charge of the Genito-Urinary Dept., Salford Royal Hospital, Manchester. *"A remarkable achievement . . . one of the best monographs we have ever read."*—BRIT. JOUR. SURG.
Bristol: John Wright & Sons, Ltd. London: Simpkin.

JUST PUBLISHED.

TWO NEW BOOKS BY DR. TH. VAN DE VELDE.

SEX HOSTILITY IN MARRIAGE: Its Origin, Prevention and Treatment.
Demy 8vo. Illustrated. 17s. 6d. net.
FERTILITY AND STERILITY IN MARRIAGE: Their Voluntary Promotion and Limitation.
Demy 8vo. Illustrated. 25s. net.
(The layman can only obtain this volume on the written recommendation of a doctor.)
The above titles complete the Trilogy of IDEAL MARRIAGE.
Wm. Heinemann (Medical Books) Ltd., 99, Great Russell-street, London, W.C.1.

"Should be in the possession of every medical man."
—GLASGOW MEDICAL JOURNAL.

URINARY SURGERY
A Handbook for the General Practitioner.
By W. K. IRWIN, M.D., F.R.C.S.,
Surgeon, St. Paul's Hospital for Genito-Urinary Diseases.
"Clearly written . . . furnishes the practitioner with information of great practical value in his everyday work."—BRIT. MED. JOUR.
SECOND EDITION. REVISED AND ENLARGED.
Price 10s. 6d. (postage 6d.).
Baillière, Tindall & Cox, 7 & 8, Henrietta-street, London, W.C.2.

THE THOMAS SPLINT AND ITS MODIFICATIONS IN THE TREATMENT OF FRACTURES.
By MEURICE SINCLAIR, C.M.G., M.B., CH.B. (EDIN.).
Pp. 152. 85 Illus., with X-Ray Photographs, 3 Charts. 15s. net.
Oxford University Press, Amen House, London, E.C.4.

GOULD'S DICTIONARIES.

Over 500,000 Copies of these Dictionaries have been sold.
MEDICAL DICTIONARY. Third edit. 35s. net; postage 1s.
PRACTITIONER'S MEDICAL DICTIONARY. Third edit. 24s. net; postage 9d.
POCKET MEDICAL DICTIONARY. Ninth edit.; 12s. net. With thumb index 14s. net; postage 6d.
London: H. K. Lewis & Co. Ltd., 136 Gower-street, W.C.1.

THE TONSILS AND ADENOIDS
AND THEIR DISEASES: INCLUDING THE PART THEY PLAY IN SYSTEMIC DISEASES.
By IRWIN MOORE, M.B., C.M.
Demy 8vo. 395 pp. 107 Illustrations. Price 21s. net.
"On any question regarding tonsils and adenoids, this exhaustive work by Dr. Irwin Moore must be regarded as the final authority for many a long day to come."—PRACTITIONER.
"Provides an admirable guide, reliable and up to date, on the subject dealt with."—MEDICAL TIMES.
"Should be in the library of the medical student, general practitioner and the consultant."—MEDICAL WORLD.
Wm. Heinemann (Medical Books), Ltd., 99, Great Russell-street, London, W.C.1.

THE JOURNAL OF THORACIC SURGERY.
Edited by EVARTS A. GRAHAM.
Published Bi-monthly. Annual subscription 37s.6d., post free.
Vol. I., No. 1, October, 1931.
Henry Kimpton, 263, High Holborn, London, W.C.1.

With 25 Illustrations. Demy 8vo. 9s. net; postage 5d.

STERILITY IN WOMEN:
ITS CAUSES AND TREATMENT.
By SIDNEY [illegible], M.D., B.S. (Lond.), F.R.C.S., Surgeon to the [illegible] for Women, Soho Square, London, &c.
"Shows a knowledge of rich personal experience; will well repay the careful study."—THE LANCET.
London: H. K. Lewis & Co., 136 Gower-street, W.C.1.

SECOND EDITION. A TEXT-BOOK OF THE EXTENSIVELY REVISED

SURGERY OF DYSPEPSIAS.
By A. [illegible], F.R.C.S., B.Sc., M.B.
viii + 720 pp. 286 Illus. 2 Coloured Plates. 42s. net.
"The book is unique, for it combines a most exhaustive review of the literature of the various lesions with a careful analysis based on the author's great and varied experience."
—BRITISH MEDICAL JOURNAL.
London: Edward Arnold & Co., 41 and 43, Maddox-street, W.1.

CANCER OF THE RECTUM.
ITS PATHOLOGY, SYMPTOMATOLOGY AND TREATMENT.
By W. ERNEST MILES, F.R.C.S., HON. F.A.C.S.,
Surgeon Emeritus (with beds) to the Cancer Hospital;
Surgeon to the Gordon Hospital for Diseases of the Rectum, &c.
80 pp. and 33 plates, bound cloth. 7s. 6d. net, post free 7s. 10d.
"It is the best exposition of the subject with which we are acquainted."—BRITISH JOURNAL OF SURGERY.
"Deserves to rank as a classic in the literature dealing with cancer of the rectum."—BULLETIN THE JOHNS HOPKINS HOSP.
"Perhaps no surgeon of to-day has had a greater experience in treating cancer of the rectum."—SURGERY, GYNECOLOGY, AND OBSTETRICS.
Harrison & Sons Ltd., 44, St. Martin's Lane, London, W.C.2.

Arey's Developmental Anatomy — NEW (2nd) EDITION.

"Professor Arey has published a text-book which includes more post-natal development than most other manuals of embryology. The outline presented of the more important developmental changes manifested after birth is a very valuable addition . . . Professor Arey is to be congratulated on the production of a text-book of embryology which may be highly recommended and is likely to be used very widely."—B.M.J.
By LESLIE BRAINERD AREY, Robert Laughlin Rea Professor of Anatomy, Northwestern University Medical School. Large octavo of 560 pages, with 1037 illustrations on 532 figures.
New (Second) Edition Cloth, 27s. 6d. net.

Jordan's General Bacteriology — NEW (10th) EDITION.

"Maintains its position as one of the best balanced and most scholarly of the current text-books upon bacteriology and has the additional charm of viewing the subject widely, not being slavishly devoted to the pathogenic micro-organisms to the exclusion of due consideration of other forms."—THE LANCET.
By EDWIN O. JORDAN, Ph.D., Professor of Bacteriology at the University of Chicago and at Rush Medical College. Octavo volume of 819 pages, illustrated. Cloth, 28s. net.

W. B. SAUNDERS COMPANY Ltd. 9, Henrietta Street, LONDON, W.C.2.

ÉLIXIR BROMO-VALERIANATE GABAIL

Literature and Samples on request.

A therapeutically active combination of Deodorised Valerianate with Strontium Bromide.

The Ideal Sedative
in all
Nervous Affections

Dose :—One tablespoonful twice or thrice daily.
As a Hypnotic :—Two tablespoonfuls at bedtime.

THE ANGLO-FRENCH DRUG CO. LTD., 238a, Gray's Inn Road, LONDON W.C 1.

"The Standard."

For a really reliable strapping see that you get ZŌPLA

It is British. It is always of the same high quality.
It has a powerful grip. It does not irritate.
It keeps well. It is supplied on various cloths and felts.

Each spool packed in a tin which keeps plaster in perfect condition. Sample on request.

LESLIES LTD., Medical Plaster Manufacturers,
High Street, Walthamstow, LONDON, E.17

To Physicians Treating
Asthma
Clinical Reports, Formula and Trial Sample of
Felsol
The Internal Non-Narcotic Treatment

BRITISH FELSOL COMPANY, LTD.,
15 CAROLINE STREET, LONDON, W.C. 1

TELEPHONE: MUSEUM 2595 TELEGRAMS: FELSOL, WESTCENT, LONDON.

THE LANCET

A JOURNAL OF BRITISH AND FOREIGN MEDICINE, SURGERY, OBSTETRICS, PHYSIOLOGY, CHEMISTRY, PHARMACOLOGY, PUBLIC HEALTH, AND NEWS.

No. 5647. LONDON, SATURDAY, NOVEMBER 21, 1931. CCXXI.

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

ADDRESSES AND ORIGINAL ARTICLES.

Preventive Medicine for the Medical Student. By SIR GEORGE NEWMAN, F.R.C.P. 1113
Keratoderma Blennorrhagicum. By DAVID LEES, F.R.C.S., and GEORGE H. PERCIVAL, F.R.C.P.—(*Illustrated*). 1116
Calcium and Phosphorus Metabolism in Late Rickets. By G. C. LINDER, M.R.C.P., and D. G. M. VADAS, M.B.—(*Illustrated*) 1124
Empyema Thoracis. By A. TUDOR EDWARDS, F.R.C.S.—(*Illustrated*) . 1126
Neurological Complications of Serum Treatment. By I. M. ALLEN, M.R.C.P. 1128

CLINICAL AND LABORATORY NOTES.

Diphtheritic Hemiplegia. By E. C. BENN, M.B., and S. ALSTEAD, M.B. 1131
Enteric Fever with so-called Negative Widal Reaction. By P. H. STIRK, M.R.C.S., D.P.H., and D. B. STEABBEN, Ph.D. 1132
A Fatal Case of Quinine Poisoning. By S. G. WILLIMOTT, B.Sc. 1133

MEDICAL SOCIETIES.

London Association of the Medical Women's Federation. — Criminal Abortion 1134
Medical Society of Individual Psychology.—Phthisis..... 1135

REVIEWS AND NOTICES OF BOOKS.

Artificial Cranial Deformation. By Eric John Dingwall, Ph.D. 1136
Grosse Ärzte. Eine Geschichte der Heilkunde in Lebensbildern. By Dr. Henry E. Sigerist 1136
An Introduction to Neurology. By C. Judson Herrick 1136
Minor Surgery. By Lionel R. Fifield, F.R.C.S. Revised by R. J. McNeill Love, F.R.C.S. 1137
Biology and Mankind. By S. A. McDowall, B.D. 1137
An Outline of the Human Body. By A. David Belilios, M.B. 1137
Leeuwenhoek: Fourteen Unpublished Letters.. 1137
The Management of Abdominal Operations. By Rodney H. Maingot, F.R.C.S. 1137
Diet and Care of the Surgical Case. By Reynold H. Boyd, F.R.C.S. 1137
Journal of Pathology and Bacteriology 1138

LEADING ARTICLES.

TRAINING IN PREVENTIVE MEDICINE 1139
RESEARCH ON ASTHMA .. 1139
CONCENTRATION OF HÆMOGLOBIN IN NORMAL HUMAN BLOOD 1140

ANNOTATIONS.

Anæsthetists to Surgical Units 1141
The C.S.M.M.G. and Loyalty..... 1142
New Light on Newton.. 1142
The Traffic in Narcotic Drugs 1143
End-results of Operations for Peptic Ulcer 1143
Sterilisation of Yeasts and Fungi 1143
Gynæcology in Vienna.. 1144
Serum in Acute Poliomyelitis..... 1144
Vitamin Standards..... 1144
Medical Certification in Ireland 1145
Leishmaniasis in the Argentine 1145
The Sully Tuberculosis Hospital.—(*Illustrated*). 1146

NEW INVENTIONS.

A New Transfusion Needle. By Stanford Howard, F.R.C.S.—(*Illustrated*) 1138

SPECIAL ARTICLES.

Russia in Reconstruction. By L. HADEN GUEST, M.R.C.S. 1147
Royal College of Physicians of London: Award of the Baly Medal 1149
Royal College of Surgeons of England: The Buckston Browne Dinner 1149
Medicine and the Law: Alleged Damage by Suicide.—Workmen's Compensation: Incidence of Miners' Nystagmus 1150
Scotland: Incidence of Sickness.—Damages for Food Poisoning 1151
Paris: Calmette and Others on B C G 1151
Budapest: "Economies" 1152
The Lübeck Trial.—(*Continued*)..... 1160

PUBLIC HEALTH SERVICES.

Annual Reports of Medical Officers of Health: Bristol. — Bradford. — St. Helens..... 1153
School Medical Service.—Colchester.—City of Leeds.—Brighton 1154
Infectious Disease in England and Wales.... 1155

CORRESPONDENCE.

Anæsthetists in the Unit System (Dr. W. Howard Jones) 1156
Albuminuria in Pregnancy (Dr. G. W. Theobald).. 1156
Cancer of the Cervix (Dr. Helen Chambers, Mr. Wilfred Shaw) 1156
Psychological Aspects of Gynæcology (Dr. F. G. Crookshank)..... 1157
Compilation of Human Pedigrees (Dr. Edwin Goodall) 1158
Female Circumcision (Dr. J. R. C. Stephens) 1159
Hughlings Jackson Fund (Dr. Wilfred Harris) .. 1159
Measles Almost Wholly Unpreventable (Dr. Duncan Forbes, Mr. H. J. Say)..... 1159
Psychological Clinics for Children (Dr. William Moodie)..... 1160

PARLIAMENT.

Notes on Current Topics: The Future of the Social Services.—Drastic Control of Imports: Effect on Medical and Surgical Supplies..... 1161
House of Commons: Imported Milk and Cattle Disease.—Smell in the House of Commons.—Salaries of Local Government Officials.—National Health Insurance Policy..... 1162

THE SERVICES.

Royal Naval Medical Service.—Royal Army Medical Corps.—Indian Medical Service.—Royal Air Force.—Colonial Medical Services.—Deaths in the Services 1146

MEDICAL NEWS.

Royal Society of Medicine: Annual Dinner 1163
Orthopædic Treatment at Leicester 1133
Eugenics Society..... 1152
British Hospitals Assoc... 1163
Univ. of London Medical Graduates Society 1163
Medical Women's Federation 1163
British Science Guild.... 1164
British Serbian Units.... 1164
Medico-Legal Society.... 1164
Royal Sanitary Institute 1164
National Birth Control Association..... 1164
British Social Hygiene Council 1164
Association of Bio-Physical Assistants 1164

NOTES, COMMENTS, AND ABSTRACTS.

A Fortnight in North America. By A. LAWRENCE ABEL, F.R.C.S. 1166
Detection and Measurement of Deafness in School-children 1168
House Appointments at L.C.C. Hospitals..... 1168
The Horse in War 1168

Births, Marriages, Deaths 1163
Appointments—Vacancies 1164
Medical Diary 1165

THE LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY LIMITED

(FOUNDED 1892)

President: Sir JOHN ROSE BRADFORD, Bart., K.C.M.G., C.B., C.B.E., M.D., F.R.C.P., F.R.S.
Treasurer and Chairman of Council: C. M. FEGEN, M.R.C.S., L.R.C.P., D.P.H.
Trustees for the Reserve Fund:
Rt. Hon. LORD DAWSON, P.C., G.C.V.O., K.C.B., M.D., P.R.C.P. Sir JOHN ROSE BRADFORD, Bart., K.C.M.G., C.B., C.B.E., M.D., F.R.C.P., F.R.S. Sir SQUIRE SPRIGGE, M.D., F.R.C.P., F.R.C.S.

The Society was founded for the following purposes: To protect, support, and safeguard the character and interests of legally qualified Medical and Dental Practitioners; to advise and assist Members of the Society in matters affecting their professional character and interests; and to indemnify them in regard to actions, etc., undertaken on their behalf.

The Society is fully insured to an unlimited extent against all adverse costs and damages which may be awarded against Members in any action which the Society undertakes on their behalf.

Annual Subscription: £1. Entrance Fee: 10s. Assets exceed £50,000.
No entrance fee to those joining within 12 months of registration.

Application form, and full particulars, from the Secretary, Victory House, Leicester Square, W.C.2.
Telephone: GERRARD 4814.

CHRONIC NASAL *A book for the General Practitioner. 107 Illustrations.* **15s.** *net; postage 6d.*

SINUSITIS AND ITS RELATION TO GENERAL MEDICINE

By PATRICK WATSON-WILLIAMS, M.D. (Lond.),
Cons. Surg., Ear, Nose and Throat Dept., Bristol Royal Infirmary.

"An epoch-making work, beautifully produced; profusely illustrated . . filled with sound teaching."—*Medical World.*
"A pioneer work, a real success."—*Bristol Med.-Chir. Jour.*
"We emphatically recommend a study of this book."—*Zeit. f. Laryng.*

BRISTOL: JOHN WRIGHT & SONS Ltd. **LONDON: SIMPKIN MARSHALL Ltd.**

APPROVED LABORATORY TECHNIC

JOHN A. KOLMER, F. BOERNER, and Contributors

Clinical, Pathological, Bacteriological, Serological, Biochemical, Histological.
With eleven coloured plates and three hundred illustrations in the text. 663 pages. Cloth. **30/-**

SPEECH PATHOLOGY

L. E TRAVIS

An indispensable manual for psychologists, physicians, teachers, social workers, speech and voice experts, and everyone who has to do with either child or adult speech defectives. Illustrated. **18/-**

D. APPLETON & CO. 34, BEDFORD STREET LONDON

THE EXPERIMENTAL STUDY OF READING

By M. D. VERNON

Large Crown 8vo. With 15 Illustrations. 8s. 6d *net*

The purpose of this book is to give a concise account of any experimental work, particularly that recently performed, which throws some light on the psychology of reading.
The acquirement in reading of a specially adapted series of eye movements is fully described. The reading perceptions of adults, and their relation to perception in general, are outlined, together with the development and disabilities of reading perception in children. Finally some account is given of the effect upon reading of variations in the printed text.

CAMBRIDGE UNIVERSITY PRESS

STAMMERING, SPEECH DEFECTS

BEHNKE METHOD. Estab. 1882. CASES, non-resident, treated at 39, Earl's Court Square, S.W.5, and, in residence, in the Summer Holidays at Miss Behnke's house on the Chilterns.
"Pre-eminent success in the education and treatment of stammering and other speech defects."—*The Times.*
"Thoroughly physiological principles."—*The Lancet.*
"The method is scientifically correct and perfectly effective."—*Guy's Hospital Gazette.*
"STAMMERING CLEFT PALATE SPEECH, LISPING." 3s. 9d. of Miss BEHNKE, 39, Earl's Court-square, S.W.5.

"GAMGEE TISSUE"

Sole Proprietors and Manufacturers
ROBINSON & SONS, Limited.
Chesterfield.

MAKERS TO MOST HOSPITALS AND INSTITUTIONS THROUGHOUT THE COUNTRY

ARTIFICIAL LIMBS

We specialize in the latest models of both metal and wood limbs.

J.&E. FERRIS Ltd.

Send your patients to us, no effort is spared to make each case a success.

PHONE MUS. 2876
EST. OVER HALF CENTURY
33 MUSEUM ST.
NEW OXFORD ST. W.C.1

Carnival Hats, Novelties, Balloons, and Decorations.

Everything for the Carnival and Regatta.
Illustrated List No. L31 *free.*

BECKS British Carnival Novelties, Manufacturers, 67, Cross Street, Islington, London, N.1

CONGRESS OF RADIOLOGY AND EXHIBITION OF X-RAY APPARATUS

under the joint auspices of the
BRITISH INSTITUTE OF RADIOLOGY
and
ASSOCIATED BRITISH MANUFACTURERS
will be held at the
CENTRAL HALL, WESTMINSTER
December 2, 3, & 4
10 a.m. to 7 p.m.
All Medical Practitioners Invited

ADDRESSES AND ORIGINAL ARTICLES

PREVENTIVE MEDICINE FOR THE MEDICAL STUDENT.*

BY SIR GEORGE NEWMAN, K.C.B., M.D. EDIN., F.R.C.P. LOND.,

CHIEF MEDICAL OFFICER OF THE MINISTRY OF HEALTH AND BOARD OF EDUCATION; CROWN NOMINEE ON THE GENERAL MEDICAL COUNCIL.

MY subject is preventive medicine in relation to the course of study now followed in the medical schools in England, particularly the London schools, and as it affects the medical practitioner.

FOUR QUESTIONS ASKED OF DOCTORS.

There are four questions which in some form or other every patient asks of his doctor:

(*a*) What is the matter with me? This is *diagnosis*.

(*b*) Can you put me right? This is *treatment* and *prognosis*.

(*c*) How did I get it? This is *causation*.

(*d*) How can I avoid it in future? This is *prevention*.

It is clear, therefore, that the corpus of knowledge which the doctor possesses must include the information which will provide effective and practical answers to these four questions. He may not be called upon to attempt a full answer to his patient, but he must give a fair working answer to himself.

It is obvious that in order to furnish an effective answer there must be both knowledge and experience, neither of which can be wholly of his own making. As life is short and art long, we must build our superstructure upon a foundation laid for us by others. In the early days it was held that it was sufficient for a student of medicine to be an apprentice to a practising doctor and "walk the hospitals." For thus he would learn at first hand by observation of Nature. It was Dr. P. M. Latham, physician to St. Bartholomew's Hospital, who long ago (1836) said this to his clerks:

> "In entering this place, even this vast hospital, where there is many a significant, many a wonderful thing, you shall take me along with you, and I will be your guide. But it is your own eyes, and your own minds, and (may I add) by your own hearts, that you must observe, and learn and profit: I can only point to the objects, and have little more to say than 'see here, and see there.'"

This wise remark remains true, but 100 years of medical advance have proved the necessity of a substantial knowledge of the human body before we can usefully "see here" or "observe there." The facts of anatomy must be acquired; still more must the student be grounded in physiology; and the functioning of the body is dependent upon chemistry and physics. And so in the course of time an elaborate curriculum of medical study has emerged, consisting of basic sciences followed by essential arts.

On the law of universal causation and on the assumption of uniformity in nature, the genius of Helmholtz in 1847 conceived the idea of the conservation of matter and of energy, a principle which has been recognised as holding good for the processes governing the living body. "There is no creation or destruction of matter in the body" said Starling. But the matter and energy of the body undergo alterations under varying conditions, either alteration of growth or of degeneration. Normally, as a result there is biological balance, equipoise, harmony, health of body. Preventive and "conservative" medicine is the science and art of maintaining that normality—by continuing or preserving its balance, by healing the impairments or damages due to stress or strain, to injury or disease, by preventing or modifying the factors and influences which lead to abnormality and by defending the body against them. This is the fundamental principle. For the body has its own innate and inherent defences, and these must be protected, developed, and fortified in order to increase its capacity and its powers of resistance. "Nature by herself determines diseases" said Sydenham "and is of herself sufficient in all things against all of them."

Yet the body is not alone, isolated by itself; it is part of Nature, surrounded by an environment, favourable or unfavourable. Perfect correspondence with a favourable environment would be, as Herbert Spencer said, perfect life. But we have got to find or create the appropriate environment and we have got to habituate the body to respond to it. For any departure from that relation is the beginning of disharmony, and the disturbance of biological harmony may be the beginning of disease. Disease is the reaction of the human body to irregularities in its internal or external environment. Metchnikoff said that disease was disharmony, and it has been truly described as the "dissociation of functional unity" of the body. It is not an entity, not a dragon or demon, outside the body. It is a disharmony within the body arising either from disturbed function or from abnormal condition of the structure of tissue, both of them caused by factors arising from irregularities in the "constant internal environment" of the body or belonging to the "variable external environment" which surrounds each of us—the climate in which we live, our nurture and upbringing, our home or workplace, our occupation or leisure pursuits, our dietary and clothing and habits. It was Claude Bernard who taught us that man has these two environments, an external variable in which he is situated, and an internal constant in which the tissue elements of his body live in a milieu formed by the circulating blood, a conception which since his day has received abundant confirmation not only from our fuller knowledge of the blood, but also from the endocrine glands and nervous regulation. "The internal environment which is maintained so constantly," says Prof. J. S. Haldane, "is in reality the expression of a balance between activities which disturb and activities which restore it." It is these two environments, the internal and the external, and their resultant, that we must observe if we would fulfil the principles of preventive medicine, for they form its justification and foundation.

INSEPARABLE PARTS OF MEDICINE.

Let us then look at the science and art of medicine as composed of three inseparable and interdependent parts:

(1) *Conservative Medicine*, the maintenance of health as the physiological balance. (This is called *Hygiene*.)

(2) *Preventive Medicine* as the specific means of avoiding or preventing disease and its sequelæ, either in the individual or in the community. (When applied to the community we call this *Public Health*.)

(3) *Remedial or Therapeutic Medicine and Surgery*, the relief and repair of the sick person and his return

* Substance of an address recently delivered at Charing Cross Hospital Medical School.

from a pathological to a physiological life. (This is called *Curative Medicine.*)

This simple classification illustrates two points—viz., that preventive medicine is not synonymous with public health (which is indeed only its communal application), and that preventive medicine includes both the prevention of the initiation and beginnings of disease and the spread of infection, and also the prevention of the impairing and mortal sequelæ of disease, if it exists.

When we consider these three aspects and then look back on the medical curriculum we shall recognise that the teaching of medicine and its practice has been all too often preoccupied in a confused and unequal struggle with end-results. We have learned our anatomy from the dead rather than the living, though the morphology of the body and the inter-relation of its organs is different in the dead from the living. Hence we must correct our study of the anatomy of the dead by that of the living. We have learned our practice of medicine, like our pathology, too largely from final entities witnessed in the hospital ward. Yet disease is a process; and if we would change or escape the end-results, we must apply our preventive and curative medicine at an earlier stage, at the beginning of the disharmony and before structural change has occurred. We must give, in a word, more attention to conservative and preventive medicine if we would meet the whole demand of the patient. He wants to be cured indeed, but he also wants no recurrence. Preventive medicine is primarily concerned with the physiological life, capacity, and health of every man and not only the relief of the patient in private practice or in a hospital bed; secondly, it is a method of reducing sickness and postponing the event of death, and is thus the one great means of individual, national, and racial survival; and thirdly, it is, on ancient authority, the highest and wisest purpose of medicine, and it is now an obligation imposed in a variety of forms and degrees upon every practitioner by the State. It is significant that the law imposes no duty on a doctor to cure his patient, but he is directly charged with numerous statutory duties in behalf of prevention. Consider for a moment what is happening in England; leprosy, famine-fever, cholera, plague, and typhus have been conquered. Yet all of them have been dominant and terrible pestilences. We are the actual witnesses in our own day of an extraordinary control of small-pox, typhoid fever, chlorosis, pulmonary tuberculosis, rickets, and the epidemic enteritis of infants. The infant mortality-rate has fallen from 156 per 1000 births to 60 in a single generation, saving tens of thousands of children every year, a salvage which brings home its own train of problems. Now these amazing conquests are not victories of hospital treatment. They are the results of conservative and preventive medicine.

REVISION OF THE CURRICULUM.

When the General Medical Council revised the medical curriculum in 1922, it was faced with a score of Acts of Parliament imposing duties of preventive medicine upon the medical practitioner, and it was confronted with the enormous advances of preventive medicine in recent years Accordingly it was resolved by the Council to recommend "that throughout the whole period of study the attention of the student should be directed by his teachers to the importance of the preventive aspects of medicine." This was not a passing fancy or popular stunt. It was an imperative necessity, imposed by the demands now made upon scientific medicine and the requirements of the State. "That medical school which fails to-day to provide liberal instruction in preventive medicine," said Prof. Sedgwick, of Massachusetts, "is sending out its graduates *unprepared* for some of the most serious problems they will have to face in the immediate future." And recently Dr. Dingwall Fordyce, of Liverpool, has said that "the benefits which the community can derive from the most comprehensive efforts of a State department are unduly limited unless the whole profession of medical practitioners become the exponents of preventive as well as of curative medicine. It is altogether undesirable to separate curative and preventive medicine, and instruction in preventive medicine must be given to all medical students."

Let us see how this may be done, and without adding seriously to the present curriculum. First the outlines of the subject of hygiene and preventive medicine can be placed before the student in his fourth or fifth year of study by a series of two dozen lectures or demonstrations by a competent teacher. This method is followed in England, though less completely than in Germany, Holland, Denmark, and the best schools in America. In Great Britain it is more fully adopted in the provincial medical schools than in London, where such teaching has been less prominent and perhaps less effective than elsewhere. A second method is to require the student to attend at certain clinics serving as centres of instruction and demonstration in the preventive aspects of medicine—e.g., clinics for out-patients, for school-children, for tuberculosis, venereal disease, orthopædics, pediatrics, vaccination, maternity, and occupational diseases (the effect of environmental factors of industrial employment, hours and methods of work, psychology, strains, stresses, &c.).

THE PREVENTIVE ASPECT.

Both these methods are entirely sound and indeed necessary, but a third method, and much the best, is to introduce into the main subjects of the curriculum, physiology, pathology, medicine, surgery, and obstetrics, the preventive principle and the preventive trend. This method is the best because it is the means of integration of the whole curriculum—its greatest single need—what Aristotle called "the track of the many into the one, and the one into the many." It has been admirably arranged at Harvard, at Vanderbilt, and at other progressive schools in the New World and in Europe. Let me illustrate how this works.

In *physiology* the whole purpose of study is to learn the normal functioning of the living body in health. The student acquires a scratch line, the norm, from which to start his race. The proper functioning of the body must be understood before we can consider its improper or disturbed functioning—in circulation, respiration, digestion, excretion, and nervous regulation. We require to know about normal blood pressure, normal endocrinology, normal sense functioning, normal physiology; yes, and not only the average normality, but the wide extension and variety of the normal. Is it not futile to attempt to learn of the abnormal until we have appreciated a standard? What is the use of talking about "deficiency" or "digestive" diseases until we understand the balanced efficiency of normal assimilation? Yet nutrition of the individual and of the community lies at the foundation of all personal and national health. Nor is nutrition only a question of food-supply. A dietary may be too low for the energy output, or it may be too high, or it may be deficient or excessive in some vital constituent. But much else is involved

in nutrition than the dietary—oxgyen-supply, exercise. rest, assimilation, metabolism. Until we have considered this subject physiologically it is mere empiricism to attempt to deal with obesity or malnutrition, with diabetes or nephritis, with abnormal blood pressure or anæmia, with scurvy or rickets. Similar considerations apply to respiration. What is the use of discussing disease of the lung until we have mastered the significance of the dual functions of pulmonary respiration and tissue respiration, and their relation to the biochemistry and excretion of the body.

I mention these two anatomical tracts, because in 1930 diseases of the alimentary and respiratory tracts taken together were accountable for more deaths in this country than any other regions of the body; independently of them came diseases of the heart and circulation, which indeed stands alone as the most mortal part of the body. Recently a careful inquiry was made into the morbid conditions which most commonly brought the insured person to his doctor. The inquiry covered 698 medical practices in 500 representative areas in all parts of England and Wales, comprising more than 1,000,000 persons, and two conditions were found to be overwhelmingly predominant over all other forms of incapacitating sickness—viz., respiratory disease (in 22 per cent. of patients) and disease of the digestive system (in 13 per cent.). Forty-four per cent. of the remainder came to their doctors for influenza, anæmia, skin disease, minor injuries, septic conditions, lumbago, rheumatism, and debility. What does this mean? It means that, in national physical incapacity and in national mortality, disease of the lung and disease of the alimentary tract stand first in causation—two vast groups of disease comprising a great variety of morbid conditions, minor and major, from dyspepsia and bronchitis to malignant disease. Again, these facts mean that when you go into practice it is not the rare disease or the complex surgical operation which will provide your daily round and common task. It is bronchitis or indigestion, and following close upon them lumbago, rheumatism, or debility, an injury or an infection, which will call for your skill. The prospect may appear to you to be tedious and trivial, but such is, all too often, the beginning of mortal disease and high tragedy. Be that as it may, the daily routine practice of the medical man is the primary opportunity for the practice of preventive medicine, for it provides him with the beginnings of disharmony and disease.

When we turn to *pathology*, we shall find a field no less preventive than that of physiology. For in our own time the study of pathology has passed beyond the compass of Morgagni and even of Bichat and Virchow—beyond organs and tissues and cells—to the dominant issue of causation. John Hunter taught us the recuperative power of the living tissues, a power of resistance and even of repair, but it was left for the bacteriologists, Koch, Pasteur, and Ehrlich to reveal to an astonished world both the cause and prevention of infective processes, establishing for themselves immortal fame and for us a priceless inheritance. The tissues, we now know, are a soil upon which may be sown a seed, or they may receive the impress of a virus, a toxic poison or an irritation, or the renovating influence of an antibody. We now know also that these agents or factors have channels of entry and means of diffusion which afford us a new opportunity for their control, for their direction and use, or for their destruction. Our conception of the ætiology of infection has been revolutionised, and not less profound and far-reaching has been a new understanding both of non-infective changes of degeneration and of the immense resources of the body cells to furnish defence. Viruses and toxins open the door to antitoxins and vaccines, which are now universally applied; and even the secretions of ductless glands can be turned to therapeutic advantage. Twenty years ago Sir Almroth Wright prophesied that the physician of the future would be an immunisator, and that foreseen power is yours to-day. Thus, a wholly new and ever-extending field of prevention, natural and artificial, has been opened to mankind.

With the aid of many new instruments and tests of precision, of investigation and of therapeusis, the practice of physic or internal *medicine* has become an immensely larger occasion both as a science and an art. For instance, 40 years ago the clinician was guided by the heart sounds, he is now directed by a cardiac syndrome or a syndrome wider yet, that of the capacity of balance and repair of the heart, and even of the body itself, leading to new methods of dealing with heart disease, with arterio-sclerosis, with diabetes, with pernicious anæmia, with thyroidism—illustrations of the advance of experimental medicine and the application of the principles of prevention to the reduction of the suffering and sequelæ of disease. "Preventive and Curative medicine," says Sir Humphry Rolleston, "are connected by the bridge of prophylactic treatment": and in the region of internal medicine the bridge has been so soundly built that the application of preventive medicine is greatly extended. The conquest of chlorosis and of enteric fever are among the victories of our own time. But they are not alone—syphilis, myxœdema, tetanus, deficiency disease, scarlet fever, diphtheria, and certain protozoal infections are steadily being subjected to control, and similar progress is being made in the understanding of mental conditions, of endocrinology, of pædiatrics, and of the wide fields of metabolic disease and occupational sickness.

There remain two fields, those of *surgery* and *obstetrics*, in which it is sometimes even now held that prevention has little or no place. But if that be so, what are we to say of the ancient surgical operation of circumcision? Was it designed, and became an imposition, some thousands of years ago, as an example of curative or of preventive surgery? And why do we excise enlarged tonsils or remove excessive adenoidal growths? In recent years the whole subject of orthopædics has come much to the front, and with it remedial exercises and immobilised rest, bearing a strong preventive tendency. Nor can we forget the preventive surgery of sepsis, as wide as the needs of men, or of tuberculosis, venereal disease, and much timely surgical intervention in abdominal, gynæcological, genito-urinal, and dental conditions. It is true that much surgery is curative, but on reflection it will be found irresistible to recognise its prophylactic and preventive tendency, a tendency happily most rapidly increasing, and very appropriately so in the great age of Listerian advance. If aseptic surgery be not preventive surgery, what is it?

Lastly, let me say one word on *midwifery*. We have been faced in England for some time past with a relatively high mortality in childbirth. There is a complex of factors and circumstances which cause it. The true answer is no doubt "preparedness" associated with antiseptic surgery. Competent and skilful midwifery, available at the crucial moment, is clearly a necessity, but still more necessary is effective antenatal and postnatal supervision, and

as far as possible by the person who will conduct the delivery. The evidence is unmistakable. All over England and every day women come to childbirth unprepared. They prepare for many hazards, but all too little for this. Preventive medicine is the medicine which foresees, and then avoids. If 3000 mothers a year lose their lives by death at childbirth, probably more than ten times that number come through their travail injured. Here too is the occasion for wise preventive midwifery, reparative reconstructional midwifery, which shall leave behind it a minimum of subsequent malady and disability.

There remains a fourth method. I am assured that the study of preventive medicine will only become really popular among students when a separate examination in the subject forms an integral part of the final examination for qualification. Whether this be so or not, there is much to be said for including specific preventive questions in the intermediate and final examinations, every time, to the exclusion of less important questions.

A FOUR-FOLD SCHEME.

Here then is a four-fold scheme by which this vital subject may be made to permeate the whole length and breadth and depth of the medical course. The matter has become one of somewhat urgent importance, for the simple reason that many newly qualified doctors in this country do not appreciate or apprehend the preventive trend which is now characteristic of enlightened medical education in all civilised nations and is required in modern practice. I submit for consideration that in every medical school this subject should no longer be neglected, but that the medical faculty of every school would do wisely to devise a scheme for including these four methods:

(*a*) A series of sensible lectures dealing not chiefly with sanitation or public health for medical officers of health, for that is a rather different issue, but with hygiene, conservative medicine, or preventive medicine (call it what you please) for every medical student. Such lectures should be concerned with the application of the new knowledge in physiology, pathology, and the arts of medicine, to the internal and external environment of man's life.

(*b*) Attendance at special clinics for the practice of preventive medicine.

(*c*) The introduction of an organised and well-designed system of instruction in the preventive aspects of the several principal subjects of the curriculum; and

(*d*) An appropriate examination before qualification.

I have long held the view that whatever benefits we may reasonably expect from organised public health services under the auspices of the State, the real outpost, the interpreter, the exponent, and the herald of preventive medicine is the medical practitioner. The time is not far distant, if it be not here already, when the public will demand preventive advice from the practitioner, both in the manifold forms of domestic hygiene and in personal hygiene and prophylaxis. We must not forget that 15,000 practitioners in England and Wales have already accepted service under the National Insurance Act, an Act passed by Parliament for the prevention as well as the cure of sickness. Is the public getting an effective preventive service? If not, is it because the doctor has not been trained to provide it? Does he appreciate that it is his function to seek the *cause* of the bronchitis, the dyspepsia, the lumbago, the rheumatism, the anæmia, the nervous breakdown, for which he is consulted; and then set to work to bend himself to control it?

THE CASE SUBMITTED.

Here then is the case I submit for your consideration. The study of preventive medicine is not mainly concerned with the sanitation of the external environment; it is much more dependent upon vital principles, three of which, in conclusion, I invite you to bear in mind.

First, to search diligently for the *causes* of things, and happy is the man who finds them, for it is understanding and comprehension and not repetition which is the secret of memory, and the wisdom of all medical action as well as of masterly inactivity.

Secondly, to try to learn and apprehend the immense range and capacity of *the body and mind of man*, the most wonderful thing we yet know of in the universe, "Nature's chiefest instrument" as Leonardo da Vinci calls it—its amazing inherent powers of resistance and defence, of recovery and healing and adventure.

Finally, to habituate yourselves to *think preventively* and constructively, for Nature itself is rational, constructive, and purposive, and as you may generally rely upon the constancy of the internal environment of man's body, so you must explore and interpret the influence of the variabilities of his external environment, for these two factors are the controllers of his life and survival, and they stand at the heart and centre of all true preventive medicine.

KERATODERMA BLENNORRHAGICUM.

ITS HISTOLOGY, CLINICAL CHARACTERISTICS, AND TREATMENT, WITH REPORT OF EIGHT CASES.

BY DAVID LEES, D.S.O., M.B., D.P.H., F.R.C.S., F.R.C.P. EDIN.,

SURGEON IN CHARGE, VENEREAL DISEASES DEPARTMENT, ROYAL INFIRMARY, EDINBURGH;

AND

GEORGE H. PERCIVAL, M.B., PH.D., F.R.C.P. EDIN., D.P.H.,

ASSISTANT PHYSICIAN, DERMATOLOGY DEPARTMENT, ROYAL INFIRMARY.

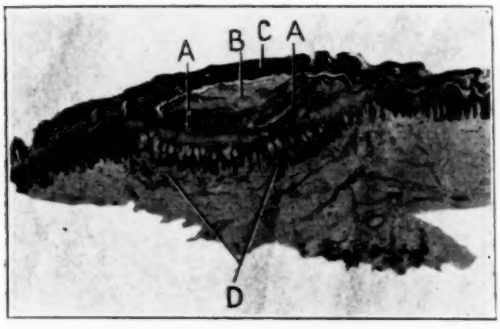
THE skin eruption known as keratoderma blennorrhagicum, together with the manifestations of a local and systemic gonorrhœal infection, presents a well-defined syndrome to which attention was first directed by Vidal in 1893. The clinical description of the eruption then given was very complete and, although no histological examination of the lesions was made, Vidal considered them to be inflammatory in nature. The dry horny masses which characterised them in their later stages, and to which the eruption owes its name, were regarded as secondary to a localised acute inflammatory process in the skin. Subsequent authors, impressed by the clinical appearance of the fully developed lesions, regarded the condition as a special type of primary hyperkeratosis. This view, however, was soon abandoned, and the essentially inflammatory nature of the lesions was rediscovered as a result of histological studies.

Up to the present time the clinical manifestations and course of the syndrome have been described in more than 80 cases. These have been thoroughly reviewed from time to time by Keim, Rosenberg and Silver, and Barrett. From a study of these published cases the following broad facts emerge. The syndrome comprises; (1) a urethritis of gonococcal origin; (2) polyarthritis; (3) inflammatory crusted skin lesions, which may be generalised but which have a predilection for the palms and soles; (4) a swinging temperature; (5) cachexia; (6) the possibility of recurrence associated with a recrudescence of the existing urethral infection, or with a reinfection by the gonococcus.

While the urethritis and arthritis are undoubtedly due to the gonococcus, the ætiology of the skin lesions has not yet been definitely proved. The fact that such lesions present a unique appearance and are only found in association with two other gonococcal manifestations is strong evidence that the cause is identical.

The incidence of this condition is stated by Harrison to be 1 in 5000 cases of gonorrhœa, while

FIG. 1.



Early vesicular lesion (× 8). A—A = vesicles; B = coagulated fibrin; C = stratum corneum; D = inflammatory infiltrate.

Brown and Hargreaves found only three cases in 20,000 cases of gonorrhœa.

Ætiology.

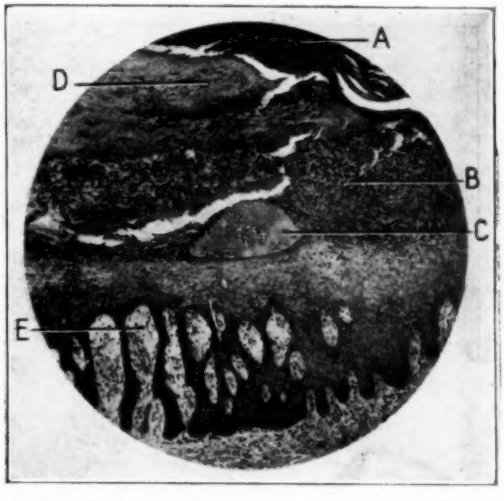
In spite of the fact that the syndrome has all the clinical appearances of a septicæmia, blood cultures, with one exception, have been uniformly negative. Roark (1912) reported the isolation of an unidentified Gram-negative diplococcus from the blood in one case. Wadsack, Campbell, Gager, Du Bois, and Barrett have found extra- and intra-cellular gram-negative diplococci in smears taken from the base of the skin lesions, and Scholtz (1899) has cultured the gonococcus from a cutaneous abscess associated with urethritis and inflammatory skin lesions. Scholtz (1927) observed the sudden appearance of fresh crops of skin lesions after the therapeutic administration of a gonococcal vaccine in one case—a phenomenon resembling a Herxheimer reaction and suggesting the gonococcal nature of the skin lesions. Chauffard and Feissinger, and Haase were able to reproduce the skin lesions by abrading the skin surface and rubbing in material obtained from the base of existing lesions. Haase, however, observed that skin lesions tended to occur on any abraded area apart from the special application to it of the exudate from old lesions. This observation, while favouring the view that the lesions are due to a blood infection, rather modifies the previous one, which otherwise would suggest that the skin lesions were infectious. Jeanselme and A. Winkelreed Williams emphasised the septicæmic nature of the condition. Haslund and Woodward also drew attention to the toxic nature of the lesions, and the former stated that in his case there was an endogenous conjunctivitis. Berman reported two cases which had lesions of the mucous membranes of the mouth, and refers to four others, and states that endocarditis was frequent in these patients. In other reported cases acute endocarditis and iritis have been recorded.

There is no doubt that most cases are preceded by a severe gonorrhœa involving the posterior urethra, the prostate gland, and the seminal vesicles, and that the infection produces a profound toxæmia and a metastatic arthritis.

In seven of the present cases and in one reported previously by one of us (D. L.) in 1922, there was definite clinical evidence of varying degrees of septicæmia. The clinical evidence certainly points definitely to the cutaneous eruption being a toxic manifestation due to a gonococcal infection, acting either directly on the skin or indirectly through the nervous system, and so producing trophic changes.

Strandberg and Hedenicus, on the other hand, state that there is no decisive evidence that this parakeratosis is due to the gonococcus. Adamson states that there are many cases of gonorrhœal hyperkeratosis in which there are eruptions on the trunk and limbs which are indistinguishable from psoriasis, and he reports three cases of arthropathic psoriasis in females in which the resemblance to keratoderma blennorrhagicum was very striking. The histopathology of both conditions is, in his opinion, very similar. Stillians and Zeisler discuss Adamson's suggestion that there is this clinical and histological resemblance. They are not prepared to accept his conclusions, because the acute course of the gonococcal hyperkeratosis with its spontaneous subsidence is sufficient to outweigh anything in favour of the identity of this lesion with an arthropathic psoriasis. Bogrow favours the view that cases in which gonococci are not found in the urethral tract are strongly suggestive of an arthropathic psoriasis, while those in which gonococci are present

FIG. 2.



Early vesicular lesion. (× 90). A = stratum corneum; B = disintegrated leucocytes; C = vesicle; D = parakeratotic cells; E = papillary œdema.

are due to a gonococcal toxæmia. Keim considers that histologically the lesions are different in arthropathic psoriasis and keratoderma, since the latter originates in a vesicle and soon becomes pustular. Scholtz doubts whether gonococcal keratoderma is a definite clinical entity or is merely a syndrome induced by some other type of infection than gonorrhœa in a patient who previously has had gonorrhœa.

The foregoing observations throw no light on the precise causation of the skin eruption, nor do they afford any evidence which is contradictory to the conception that it is due to a blood-borne gonococcal

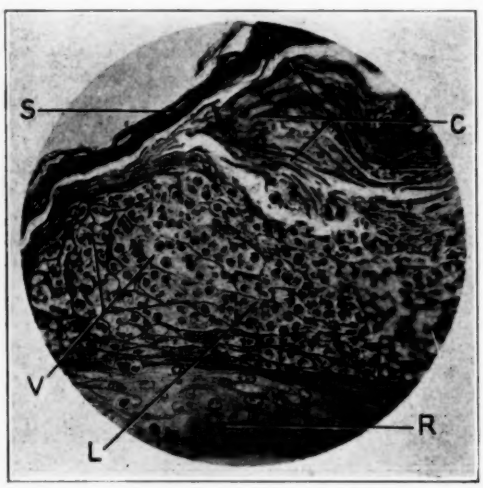
infection. The results of blood culture and of bacteriological examination of typical lesions must, however, be considered negative, since any organisms isolated have not been identified culturally.

Authors' Cases.

In each of our eight cases there was undoubted evidence of a severe systemic gonorrhœa, complicated by an arthritis of varying severity, and clinically every case was profoundly toxæmic. In none of the eight cases were we able to isolate the gonococcus by blood culture, nor in films or culture, even from the earliest vesicular lesions. In spite of this, we have no doubt that there is a definite association between the severe metastatic gonorrhœa and the skin eruption, and that the organism or its toxins act directly on the skin, or that the toxins act indirectly on it through the nervous system and lead to atrophic nerve disturbances.

In Case 6 a culture of the urethral discharge gave a growth of gonococci, *Staphylococcus albus*, and diphtheroid bacilli. A culture of the skin lesion showed *S. citreus*. When the eruption had reached its height and no fresh lesions were appearing, an attempt was made to reproduce the lesions on areas of the patient's skin which were previously unaffected by the disease. The methods used were: (*a*) scarification of the skin and inoculation of a culture from the hyperkeratotic papule (*S. citreus*); (*b*) scarification of the skin and inoculation of a culture from the urethra (gonococci, staphylococci, and diphtheroids); (*c*) intradermal injection of the culture from the

FIG. 3.



Pustular lesion (×245). S=stratum corneum; C=parakeratotic crust; V=desiccating vesicle filled with disintegrating leucocytes (L); R=upper layer of rete Malpighii.

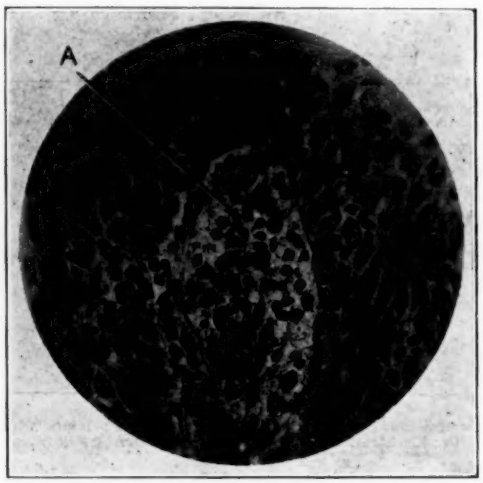
papule; and (*d*) intradermal injection of the urethral culture. Controls were established by scarification alone, scarification with killed cultures, and intradermal inoculation with killed cultures. No change on the skin was noted, except in the area of intradermal inoculation of the live culture from the urethral discharge. This resulted in a typical vesicle which rapidly became pustular and hyperkeratotic.

While no conclusions can be drawn from the fact that the intradermal inoculation of a mixture of a living culture of gonococci, *Staphylococcus albus* and diphtheroid bacilli reproduced the lesion of keratoderma blennorrhagicum, there are three possible explanations for its occurrence:—

(1) By coincidence a fresh lesion may have appeared spontaneously at the site of inoculation.

(2) The mixture of living organisms may have been directly responsible for the production of the skin lesion.

FIG. 4.



Shows the tip of a congested papilla with invasion of the rete Malpighii by lymphocytes, at A.

(3) A spontaneous lesion may have been induced and localised at the site of inoculation as a result of the accompanying trauma.

The third possibility would place the lesion in the same category as the lesions of psoriasis and lichen planus which appear at the site of skin injuries. This "Kobner phenomenon" has also been shown to occur when fungus spores are injected intravenously, and trichophytide lesions are provoked on any area of the skin which has been traumatised. As 11 other skin areas had been scarified or inoculated in this case without the production of a lesion, the Kobner phenomenon does not seem to offer a very satisfactory explanation of the positive result obtained. As no further skin lesions appeared in this patient, it is possible that the live culture or its toxins may have acted directly on the skin and produced the lesion. Further experiments along these lines are, however, required to substantiate this observation.

HISTOLOGICAL FINDINGS.

CASE 1. *Vesicular stage* (Figs. 1 and 2).—The lesion is clearly demarcated from the surrounding skin. Superficially, the stratum corneum is intact and is raised from the rete mucosum by a mass of coagulated fibrin in which are to be found numerous polymorphonuclear leucocytes and lymphocytes, interspersed by layers of parakeratotic epidermal cells. In the deepest parts of this mass there are several circumscribed collections of fluid which contain a few epidermal cells and polymorphs. These small vesicles rest on and are surrounded by compressed epidermal cells. Throughout this mass of evidently desiccating inflammatory exudation there are several homogeneous areas of coagulated fibrin, which are probably the remains of previous vesicles. The subjacent rete mucosum is depressed by this overlying mass. In the rete the stratum granulosum stops suddenly at the edge of the lesion, and is absent throughout the whole of the area involved. The newly formed vesicles are situated at the level which should have been occupied by the stratum granulosum. The rete is acanthotic, and the pegs are long and narrow. The cells stain poorly and are swollen, and vacuolation is seen in places. The nuclei do not stain well, and in some places the outer membrane only is to be seen. Polymorphonuclear leucocytes and lymphocytes are scattered throughout the rete, invasion having taken place at the

tips of the papillæ. The rete is the seat of the intercellular œdema, which varies in amount in different parts of the lesion. The papillæ are elongated, and the vessels are very much dilated. In their upper part the papillæ are very œdematous, while at the base there is a well-marked cellular infiltration which consists chiefly of lymphocytes. The middle and deep zones of the dermis are normal.

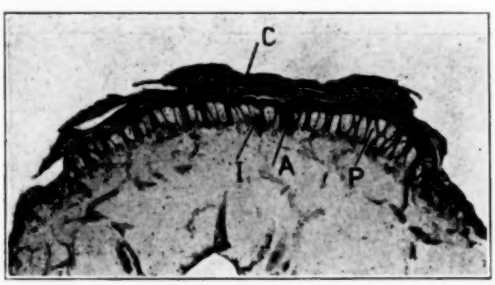
CASE 2. *Pustular lesion* (Fig. 3).—The lesion involves the upper part of the dermis and the epidermis, and is clearly defined from the surrounding normal tissue. At the periphery of the lesion the stratum corneum is hypertrophied and separated from the subjacent epidermis by a localised infiltration of polymorphonuclear leucocytes and lymphocytes. The stratum corneum forming the superficial covering for this infiltration is composed of normally keratinised cells. Towards the centre of the lesion the surface inflammatory exudation has become desiccated, and here masses of imperfectly keratinised nucleated epidermal cells alternate with groups of invading leucocytes and coagulated plasma to form a squamous crust, which is covered externally by a thin band of stratum corneum. Leucocytes and fibrin form a continuous layer above and in close contact with the most superficial epidermal cells. The whole of this structure forms a conical elevation which rests on the subjacent mucosum.

The stratum granulosum is practically absent, and the cells corresponding in position to this layer are flattened and elongated, and only occasionally contain granules. The rete mucosum is acanthotic, and the interpapillary processes are elongated. The rete cells are slightly swollen, and the cell protoplasm and nuclei stain somewhat faintly in the upper layers while staining normally in the interpapillary processes. A certain degree of intercellular œdema is present in places throughout the rete. The rete is in process of being invaded by polymorphonuclear and mononuclear leucocytes, but these are not present in large numbers. The invasion occurs at the tips of the papillæ (Fig. 4).

In the dermis the papillæ are elongated and œdematous, and are the site of an extensive mononuclear and polymorphonuclear leucocytic infiltration. These infiltrating cells can be seen invading the basal layer of the epidermis at the tips of the papillæ. The blood and lymph vessels of the papillæ are dilated, and the endothelial cells lining the vessels are swollen. Many of the vessels of the subpapillary vascular plexus are dilated and surrounded by a perivascular infiltration of mononuclear leucocytes. The middle and lower portions of the dermis are normal, and the lesion is clearly demarcated from the surrounding skin both as regards the epidermal changes and the papillary infiltration.

Parakeratotic rupioidal lesion (Figs. 5–8).—A dense lamellated mass replaces the stratum corneum, which is completely absent from the area occupied by the lesion. This mass is composed of broad layers of parakeratotic cells interspersed

FIG. 5.

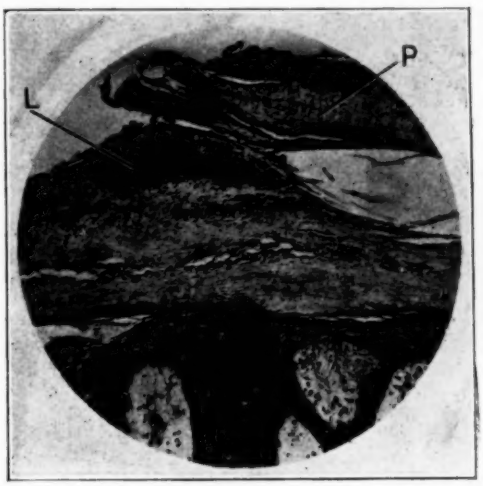


Fully developed parakeratotic rupioidal lesion (×8) showing squame crust (C), ancanthotic rete Malpighii (A), papillary œdema (P), and inflammatory cells at base of papillæ (I).

with areas of coagulated plasma and degenerated leucocytes. This squamous crust rests on a layer of horizontally elongated rete mucosum cells (Figs. 5 and 6). The interpapillary processes of the rete mucosum are narrowed and elongated. The suprapapillary portions are very much narrowed, and the cells in these regions are packed tightly together and elongated horizontally. The stratum granulosum is represented by a layer several cells in thickness, and eleiden granules are practically absent. The cells composing the interpapillary rete processes stain well and, apart from lateral compression in places, appear normal. A few mononuclear leucocytes can be seen to have invaded the rete mucosum.

The papillary processes of the dermis are broadened and elongated. All are markedly œdematous, and contain a few scattered mononuclear and connective tissue cells supported by a scanty and wide-meshed fibrillary network. The papillary vessels are very much dilated. At the base of the papillæ there is a well-marked, loosely packed infiltration of small round cells, with here and there an occasional large lymphocyte or histiocyte. In this region there is still some œdema, but it is very much less marked than in the

FIG. 6.



Showing structure of parakeratotic squame crust (×115). L = mass of disintegrated leucocytes; P = parakeratotic stratum corneum cells.

papillæ proper. In the subpapillary portion of the dermis there is a slight amount of œdema, and many of the lymph and blood-vessels are dilated and surrounded by a perivascular small round cell infiltration. The deep layers are normal (Figs. 7 and 8).

CASE 3. *Parakeratotic rupioidal lesion* (Fig. 9).—The stratum corneum is replaced by a dense, thick, squamous crust, consisting of alternating layers of parakeratotic epidermal cells, polymorphonuclear, and mononuclear leucocytes, and fibrin. This crust rests directly on the rete mucosum and, at the points of contact, parakeratotic cells, leucocytes, and coagulated fibrin are intimately intermingled. The rete mucosum is acanthotic, the interpapillary processes are long and fingerlike, and the papillæ are elongated. The cells of the rete stain normally, and there is no intercellular œdema present. The suprapapillary portions of the epidermis are composed of compressed, elongated, closely packed rete cells. Mononuclear and polymorphonuclear leucocytes are scattered throughout the rete, and can be seen invading the basal layer at the tips of the papillæ. Several small nests of invading leucocytes are present in the upper layers of the rete, giving the appearance of small, intra-epidermal abscesses (Fig. 9). The stratum granulosum is replaced by a layer of flattened, non-granular cells.

In the dermis the papillæ are tremendously elongated and œdematous. The papillary vessels are widely dilated. The stroma of the papillæ is reduced to a wide-meshed network of fine fibrils. There is much coagulated fibrin enclosed in this network, and a few small round cells and connective tissue cells are scattered throughout. Towards the base of the papilla, cellular elements are more numerous, and consist mostly of small round cells, with here and there a few large lymphocytes or histiocytes. The subpapillary area of the dermis is œdematous, contains numerous widely dilated blood and lymph vessels, and an abundant loosely packed infiltration of small round cells situated more or less around the vessels; there are also numerous proliferated connective tissue cells and larger cells which appear to be derived from the endothelium of the blood-vessels. In the middle and lower portions of the dermis œdema is absent, and collagen fibres are normal. The connective cells are slightly more numerous than usual, and some blood-vessels are dilated and surrounded by a scanty infiltration of small round cells.

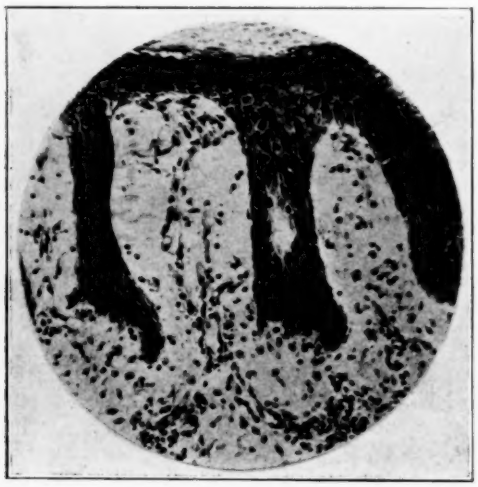
COMMENT ON HISTOLOGY.

The primary vesicular nature of the lesions of undoubted cases of keratoderma blennorrhagicum has been commented on by several workers who have based their observations on clinical and histological examination of the eruptive elements. Keim (1924) has studied the histology of the lesions in one case in which the lesions were shown to commence as intra-epidermic vesicles, and to pass through a pustular to a crusted stage. Marked œdema of the papillæ and epidermal cells, together with elongation of the rete pegs and the presence of laminated parakeratotic squame crust, were characteristic features of the fully developed lesion. Barrett has also demonstrated histologically the primary vesicular structure of the lesions. Chauffard (1897), Sobotka (1913), Haslund (1913), Simpson (1917), Stillians and Zeisler, Gans, Haase, and Rostenberg and Silver (1927) have variously emphasised the papillary œdema, epidermic œdema, and parakeratosis.

In the present series of cases histological examination shows that the eruptive elements commence as small intra-epidermic vesicles, the contents of which rapidly become purulent, and subsequently dry up. The formation of multiple vesicles, along with their subsequent dessication, is well illustrated by Figs. 1, 2, and 3, and the latter corresponds closely with Figs. 8, 9, and 10 of Keim's article. These vesicles occur at different points of the lesion, and are subsequently pushed up towards the surface. They interfere with normal keratinisation, bring about parakeratosis, and separate the stratum corneum from the rete mucosum. By the constant repetition of this process the stratum corneum eventually forms a covering for a lamellated mass of coagulated fibrin, leucocytes, and parakeratotic epidermal cells. In this mass the localised aggregations of disintegrated leucocytes and homogeneous fibrin represent the relics of the previously existing vesicles. Later, actual vesiculation apparently ceases, and its place is taken by the formation of small intra-epidermic collections of lymphocytes which, however, have the same effect on the process of keratinisation as had the vesicles. Coincident with the increasing thickness of the squame crust, the covering of normal stratum corneum which was present during the earlier stages of the lesion is lost.

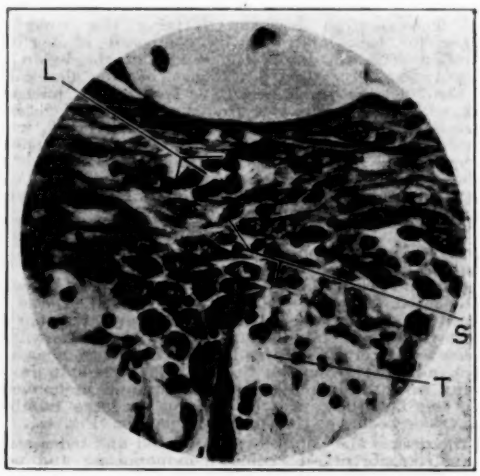
These changes in the superficial strata of the epidermis appear to result from an acute inflammation of the papillary layer of the dermis, which probably constitutes the initial step in the formation of the lesion. Here œdema is present to an extreme degree, and cellular infiltration is marked. Cellular invasion of the basal layer of the epidermis is also taking place. It is a striking fact that, between the superficial

FIG. 7.



Papillary œdema in a fully developed rupioidal lesion (×120).

FIG. 9.



Parakeratotic rupioidal lesion (×290) showing tip of œdematous papilla (T), stream of leucocytes (S) invading the rete and leading to a small collection of lymphocytes situated high up in this layer.

FIG. 8.

Entire parakeratotic rupioidal lesion (×8) showing acanthosis, papillary œdema, and remains of crust.

FIG. 10.

Papulo-pustular condition after rupture of vesicles and gradual formation of horny papules.

crusted mass and the grossly altered papillæ, the rete mucosum shows very little structural change except that which can be accounted for by mechanical pressure. The stratum granulosum, however, is practically absent throughout in all the sections, and parakeratosis has occurred. In places a stream of leucocytes can be traced from the tip of an

FIG. 11.

Fully formed horny conica papules.

œdematous papilla to a small collection of leucocytes in an intra-epidermic space at the level of, or just underneath the layer which should have been occupied by granular cells. The lesions taken from both cases in their later stage show a striking resemblance to each other, and to that illustrated by Keim in Fig. 11 of his article. The dermic inflammatory process seems to be limited to the pars papillaris throughout the entire evolution of the lesion. The structure of the lesions at various stages of development gives no real indication whether these have been produced as a result of an external or blood-borne intoxication or infection. The changes are limited to the superficial zone of the skin throughout their evolution, a localisation which could be accounted for by either method. In the early stages, however, the thick

FIG. 12.

Large geographic map-like areas of keratoderma.

stratum corneum remains intact, and the lesion continues to develop underneath this protecting layer for some considerable time. This fact might be brought forward as evidence against the external origin of the causative agent. In the later stages it is very probable that secondary infection of the lesion as a result of surface contamination is to some extent responsible for the persistence of the inflammatory reaction.

This picture of acanthosis, parakeratosis, and cellular invasion of the epidermis presents a striking resemblance to some types of psoriasis. The clinical resemblance between keratoderma blennorrhagicum and arthropathic psoriasis has also been noted by Wailsch, Buschke, Adamson, Little, and Falk, and it has even been suggested that all cases of keratoderma blennorrhagicum are merely examples of arthropathic psoriasis. At present, in the absence of direct proof of the gonococcal origin of the skin lesions of keratoderma blennorrhagicum, it is impossible to make a distinction from the ætiological aspect. The architecture of the lesions is, however, essentially different from that of psoriasis, in view of the initial well-marked vesicle formation, although in the later stages of development, when evidence of previous vesiculation is lacking, the histological differentiation of the two diseases is delicate. Keim, Scholtz (1927), and Rostenberg and Silver have no hesitation, on histological findings alone, in considering keratoderma blennorrhagicum as a dermatological entity which is quite distinct from psoriasis. As distinguishing features between the two conditions in the later stages, the following points may be brought forward. The squame crust in keratoderma blennorrhagicum differs from the purely parakeratotic scale seen in psoriasis, and in the former condition the papillary œdema is a marked and apparently constant feature. Furthermore, the predominating cell in the epidermal infiltrate in keratoderma blennorrhagicum is the lymphocyte.

FIG. 13.

Blotchy pigmented appearance of skin after hyperkeratotic papules drop off.

Clinical Characteristics.

The cutaneous lesions may appear at any time after a gonococcal infection. Williams has reported a case occurring 13 years after, and Lees a case occurring 18 years after the initial gonorrhœa. The common time of onset is from the third to the sixth week of the acute gonorrhœa. This skin eruption is rare in females, but cases have been reported by Robert, Buschke and Langer, and Lees. The youngest recorded case is by Robert, in a girl 4 years of age.

The lesion appears initially on the lower limbs and is generally bilateral. The soles of the feet, especially in the region over the plantar surface of the big toe, are almost always affected. In some cases the cutaneous eruptions are widespread over the trunk and extremities. This occurred in Cases 3, 5, 6, and 7. In Case 5 the keratotic lesions were present on the prepuce, producing a balanitis circinata. In this series of cases we were able to observe the lesions in all stages of development, from the early minute vesicle to the large parakeratotic rupioidal lesion.

The skin eruption of keratoderma blennorrhagicum starts as a series of vesicles, small at first, which gradually enlarge and take on a dark red colour. The vesicle ruptures and papulo-pustular formation (Fig. 10) sets in with crusting, which gradually forms into a conical papule. These conical papules enlarge (Fig. 11) and are horny on palpation. They become more crusted, or coalesce to form large geographic map-like areas (Fig. 12) which finally drop off and leave the skin with a blotchy pigmented appearance (Fig. 13). There is no loss of tissue, and no induration left after the hyperkeratotic papules drop off.

In a case of gonococcal urethritis which is complicated by a metastatic arthritis, a vesicular skin lesion, which rapidly becomes pustular and keratinised, and which is bilateral, is almost certainly keratoderma blennorrhagicum. The gonococcal complement-fixation test gives a positive reaction. The Wassermann test and the flocculation tests for syphilis are negative unless the patient has an additional syphilitic infection. A hyperkeratotic syphilide is generally unilateral. A rupioid psoriasis is rarely accompanied by arthritis, and evidence of gonorrhœa is not present. There is not the same systemic upset.

CASE REPORTS.

Eight cases have been observed in the venereal department of the Royal Infirmary during the past nine years; all were in adult males.

CASE 1.—A man, aged 28, developed a purulent urethral discharge seven days after exposure to infection, and was admitted to hospital on the fourteenth day of the illness, with acute arthritis of the right knee and both ankles. The temperature was 103°–104° F. Gonococci were present in the urethral discharge, and there was an acute posterior urethritis with involvement of the prostate gland and seminal vesicles. The blood gave a strongly positive complement-fixation test, and a negative Wassermann reaction. Blood culture was sterile.

On the twenty-second day of the illness an eruption appeared on both feet and followed its usual course, becoming hyperkeratotic in ten days, and desquamating after about three weeks. For four weeks all symptoms improved, and the patient made satisfactory progress. In the fifth week the urethral discharge recurred, the right ankle became inflamed again, and a fresh crop of lesions appeared on the feet. These became hyperkeratotic, and finally desquamated. The urethral infection subsided, and again recurred in the fifth month of the illness, and later in the eighth month, but without recurrence of joint or skin manifestations. Patient left the city and was lost trace of; at the last examination gonococci were present in the urethral secretion.

Treatment consisted initially of small doses of an arsenobenzol preparation intravenously, followed later by injections of detoxicated gonococcal vaccine, and later still an autogenous vaccine combined with the stock vaccine. Local treatment by irrigation with numerous antiseptics was carried out, and appropriate tonics were given to combat the cachexia and other systemic symptoms.

CASE 2.—A man, aged 43, was admitted to hospital with an acute arthritis of the right knee and left wrist, coming on six weeks after the appearance of an acute urethral infection. The temperature was 101°–103° F. One week later the right elbow became inflamed, and an eruption appeared on both feet. The patient suffered from acute posterior urethritis and acute prostatitis, and gonococci were present in the urethral discharge. The blood gave a strongly positive gonococcal complement-fixation test and a negative Wassermann reaction, and blood culture was sterile. The arthritis gradually subsided, and disappeared completely in two months. The skin lesions desquamated in five weeks. He was eventually discharged as cured after five months.

Treatment was directed to the focus of infection in the urethra and prostate, and detoxicated gonococcal vaccine was given in increasing doses.

CASE 3.—A man, aged 36, came to hospital five weeks after the onset of an acute urethritis in which gonococci were stated to be present. He had suffered from acute arthritis of both knees for three weeks, had a swinging temperature, perspired profusely at night, and was acutely ill. This continued for another five weeks after admission, during which time both ankles, the left wrist, and the right shoulder became acutely inflamed. Both seminal vesicles were acutely inflamed. The toxæmia was profound, and the patient exhausted. Ten weeks after the onset of urethral discharge an eruption appeared on the chest, back, hands and feet, forearms and buttocks. On the hands and feet the hyperkeratosis was more marked; on the trunk the lesions tended to coalesce, and desquamated in large plaques. In spite of all treatment, the patient remained gravely ill for some weeks. The heart was dilated, and systolic murmurs were heard at all areas. Gradual improvement occurred later. The lesions desquamated about two months after their onset, the arthritis subsided, and finally full use of all joints was obtained. The patient was in hospital for six months, and was discharged as cured after eight months. No gonococci were found by us in urethral films, or in the urine, and culture tests of these secretions were sterile. Blood culture was repeatedly sterile. The gonococcal complement-fixation test was strongly positive, and the Wassermann reaction negative. Films and cultures from the vesicles and pustules on the skin failed to demonstrate any organisms.

Many forms of treatment were tried in this case—principally "914" intravenously in minute doses, and vaccines; first a detoxicated gonococcal vaccine, and later an autogenous vaccine made from the urine and prostatic and seminal secretion.

CASE 4.—A man, aged 30, suffered on admission from a subacute arthritis of both knees, ankles, and tarsus. He gave a history of acute gonorrhœa one year previously; three weeks after this infection both knees became acutely inflamed; later the left ankle, both shoulders, and subsequently the wrists and right ankle were involved. The joints had continued inflamed intermittently up to admission. Ten days after admission the eruption appeared on both feet and slightly on the hands; it gradually became keratinised, and desquamated after four weeks. During this period there was a mild irregular pyrexia—100° F. at night. Films and cultures from the urine and urethra failed to show gonococci; a growth of *S. albus*, *S. aureus*, *S. citreus*, and diphtheroid bacilli was obtained. The prostate was enlarged and tender, and the expressed fluid contained pus cells in large numbers. The blood gave a positive gonococcal complement-fixation test, and the Wassermann reaction was negative.

Treatment consisted of small doses of "914" intravenously, and later stock gonococcal vaccine and an autogenous vaccine from the urine. Treatment of the urethra and prostate was continued throughout. All the symptoms cleared up in six weeks, apart from spurs on the calcaneus of each foot.

CASE 5.—A man, aged 28, attended hospital as an out-patient suffering from acute posterior urethritis, with involvement of prostate and seminal vesicles. Gonococci were found in the urethral films, and the complement-fixation test for gonorrhœa was strongly positive. The Wassermann reaction was negative.

Treatment was not continued by the patient; alcohol was taken, and five weeks later he reported with the ankles and tarsal joints of both feet acutely inflamed; the right knee became inflamed some days later. He was admitted to hospital where he ran an irregular fever—up to 101° F. at night; at the end of the fifth week of the illness an eruption appeared (see Fig. 10) on both feet, chiefly on the soles and margins, and slightly on the dorsum. Balanitis circinata was present, but cleared up rapidly under vaccine and other treatment. The arthritis and skin lesions subsided after two months, the urethral infection improved, and the infection was apparently cured, though the patient was kept under observation as an out-patient. He defaulted from observation and, five months after the onset of infection, returned with a purulent urethral discharge, containing gonococci, acute prostatitis and vesiculitis, and a recurrence of the arthritis of both knees, left elbow, and left wrist. Simultaneously the eruption reappeared on both feet. All manifestations cleared up fairly quickly under vaccines, and in two months all symptoms had disappeared. The patient was finally discharged cured at the end of ten months. The blood gave a strongly positive gonococcal complement-fixation test on readmission, a negative Wassermann, and on two occasions a sterile blood culture. Cultures and films were made of the fluid from the vesicles on the skin, but no organisms were demonstrated.

CASE 6.—A man, aged 25, was admitted to hospital with acute arthritis of both knees, and gave a history of acute gonorrhœa three months before, which had been untreated. He had no urinary symptoms, but an irregular pyrexia up to 100° F. at night, and the arthritis did not react to salicylates. One week after admission the eruption appeared on both feet, and a few lesions on each forearm, and on the abdomen and chest. A purulent urethral discharge reappeared, and gonococci were demonstrated. The prostate and seminal vesicles were enlarged and tender. The blood gave a strongly positive gonococcal complement-fixation test and a negative Wassermann reaction. Blood culture gave a growth of *S. aureus*. From the skin lesions a growth of *S. citreus* was obtained. Cultures from the urethra gave a growth of gonococci, *S. albus*, and diphtheroid bacilli. The arthritis subsided in three weeks; in the same period the lesions became horny and desquamated. Attempts were made in this patient to produce fresh lesions experimentally, as stated previously.

With "914" intravenously, and subsequently vaccines, both stock gonococcal and autogenous from the urine, the symptoms cleared up rapidly, and he was discharged cured in three months.

CASE 7.—A man, aged 32, had had gonorrhœa two or three years previously, associated with acute arthritis of the right knee and both ankles. This arthritis became subacute with repeated exacerbations, and the patient had

been crippled for two years and bedridden for nine months. No treatment for the gonococcal infection had been given. The patient, when first seen, was very feeble and emaciated, with large bed-sores over the sacrum, heels, and elbows. There was a complete subluxation of the right knee-joint, and a subacute arthritis with fixation of the left knee and both ankles. The temperature was irregular and swinging. There was a subacute posterior urethritis; and the prostate and seminal vesicles were thickened and tender. The eruption, which had been present for 14 days, was severe and widespread, covering both palms and soles, appearing slightly on the feet and legs, profusely on the trunk, and slightly on the forearms. It was thought by his medical attendant to be a syphilitic rupia. Exhaustion and toxæmia were extreme. The eruption became horny, and after four weeks had almost entirely desquamated. Examination of the urine and urethral films showed staphylococci and diphtheroid bacilli, but no gonococci. Blood culture was sterile. The blood gave a negative Wassermann reaction, and a strongly positive gonococcal complement-fixation test.

Treatment consisted of minute doses of "914" intravenously, and later "arthrigon" intravenously. The pyrexia subsided, and the patient showed some slight improvement. No treatment to the urethra or prostate was possible, because of the joint deformities. The patient developed broncho-pneumonia, and died of acute septicæmia six weeks after the onset of the eruption.

CASE 8.—A man, aged 38, had a gonococcal infection in February, 1931, and a previous history of syphilis in 1917. Medicinal treatment only was given at first. He reported at hospital in May, 1931, with subacute posterior urethritis and subacute prostatitis. Subacute arthritis was present in both knees, both ankles, and the tarsal joints, with marked limitation of movement. The temperature was 99°–100° F. Small scattered vesiculo-papular lesions, which rapidly became keratinised, were present in large numbers on the feet and legs; a few were found on the trunk. Gonococci were found in urethral films and on culture. The complement-fixation test for gonorrhœa was strongly positive. The Wassermann test and the Sachs-Georgi test gave positive reactions, and the patient suffered from latent untreated syphilis.

In addition to local treatment of the urethritis, intravenous injections of "arthrigon" were given. The skin lesions disappeared in three to four weeks, and the joints made rapid improvement under massage. All symptoms of gonococcal infection cleared up after seven weeks of treatment. The latent syphilis was treated at the same time by intravenous "914," and intramuscular injections of bismuth. The patient is now undergoing tests of cure for gonorrhœa.

The striking characteristics of these eight cases of keratoderma blennorrhagicum were the association in every case either with a previous urethritis (two cases) or with an existing acute urethritis (six cases). Every case suffered from an acute polyarthritis and other toxic manifestations of a severe metastatic gonorrhœa. In two cases the keratoderma recurred. The complement-fixation test for gonorrhœa was always positive. The Wassermann test and the Sachs-Georgi reaction were negative in all except Case 8, in which there was a previous but untreated syphilitic infection. Another feature of most of the cases was the response to treatment, and the final and complete disappearance of any evidence of the hyperkeratosis. With the exception of Case 7 all joint involvement disappeared, with complete restoration of function and no deformity. In all eight cases the systemic infection was severe, and the temperature was swinging; anæmia, cachexia of varying degree, and muscle wasting were prominent features in every case.

Treatment.

The skin condition reacts well if the appropriate treatment for the urethral infection and the systemic gonorrhœa is given. One of our cases died of pneumonia and generalised septicæmia. Seven cases made a complete recovery.

Treatment is fourfold and must include:—

(*a*) Measures to eradicate the focus of gonococcal infection from the genito-urinary canal, including the prostate, the seminal vesicles, and other infected areas.

(*b*) Appropriate treatment to the inflamed joints and peri-articular tissues, to alleviate pain and prevent the formation of adhesions, which lead to subsequent deformity of the joints.

(*c*) Treatment through the blood stream, by chemotherapy, vaccine therapy, or protein shock, to combat the systemic infection and the toxæmia.

(*d*) Attention to the general health of the patient by rest in bed, good nursing to prevent the development of bed-sores, nourishing food, and at a later date the administration of tonics to overcome the cachexia and debility.

The skin itself requires practically no treatment, apart from sponging to keep it active and clean. An antiseptic, such as equal parts of eucalyptus and olive oil, or an ointment may be applied, to soften the crusts and favour desquamation. Personal cleanliness is insisted on by Chauffard, who recommends dressing with plain boiled water and frequent washings with soap to prevent the development of further vesicles of keratoderma. Mehliss relies on sun baths for limiting the process. Antiseptic baths are comforting in the declining stages. It is essential to establish drainage from every infected urethra by irrigation, and later on by massage of the prostate and vesicles, and by instrumentation if required.

Treatment through the blood stream by vaccines has been advocated in most of the reported cases. Dyke, Bogrow, Scholtz, and Little have all reported favourably on judicious vaccine treatment. In the present series of cases, and in two cases previously reported by us, gradually increasing doses of a polyvalent detoxicated vaccine appeared to influence the general toxæmia, the arthritis, and the associated urethritis very favourably in most of the cases. It is important, especially in very toxic cases, to administer very minute doses initially and to watch carefully the local, the focal, and the general reaction to the vaccine. In cases of long standing, and in those in which there is a secondary infection of the urethra by other organisms, it is advantageous to administer an autogenous vaccine prepared from a culture of the urethral and prostatic secretion or from the patient's urine, in combination with a polyvalent detoxicated gonococcal vaccine. The former ensures specificity of the vaccine, and the latter is possibly of stronger antigenic power because of its polyvalent character. In a previous communication we referred to the fact that some cases of keratoderma blennorrhagicum do not react initially to vaccine treatment. This is most likely to occur in the severe septicæmic cases, such as those which one of us had the opportunity of observing in military hospitals during the war under the care of Bolam and Harrison. Lundie reported a case in which the keratoderma developed during the administration of vaccines. Montpelier also has not been successful with vaccine therapy in this condition. In three of the more profoundly toxic patients in this series, who suffered from marked cachexia and emaciation, vaccines did not produce a favourable response initially, and the method of treatment by an arseno-benzol preparation administered intravenously—which was originally advocated by Bolam—appeared to stimulate the patient's resistance to the infection and lead to a definite improvement. Minute doses of neokharsivan (0·001 to 0·005 g.) were given at intervals of three or four days until the more toxic symptoms had subsided, as shown by subsidence of temperature, cleaning of the tongue, lessening of the arthritic pains, and improvement of the pulse and the general constitutional disturbances. As soon as this improvement is apparent in these grave cases, vaccines may be administered in careful doses, and they undoubtedly accelerate the progress towards recovery. It is a notable fact that even in the most severe cases the skin makes a complete recovery, no scarring is left, and during convalescence the patients put on weight rapidly and make an unexpectedly good

recovery in view of the formidable clinical picture. We are in complete agreement with Little that judicious vaccine therapy "has materially lessened the mortality and cut short the duration of the disease."

BIBLIOGRAPHY.

Adamson, H. G.: Brit. Jour. Derm., 1919, xxxi., 521; 1920, xxxii., 183.
Barrett, C. C.: Arch. Derm. and Syph., 1930, xxii., 627.
Bogrow, S. L.: Arch. Derm. und Syph., 1923, xliii., 23.
Bolam, R. A., and Harrison, L. W.: Personal Communication.
Baerman, L.: Derm. Zeit., 1928, li., 420.
Brown, W. H., and Hargreaves, H.: Brit. Jour. Derm., 1917, xxix., 107.
Buschke, A.: Arch. Derm. und Syph., 1912, cxiii., 223.
Buschke, A., and Langer, E.: Derm. Woch., 1923, lxxvi., 145.
Campbell: Cited in Sutton's Diseases of the Skin, St. Louis, 1923, p. 438.
Chauffard, A.: Bull. et mém. Soc. méd. hôp. de Paris, 1897, xiv., 93.
Chauffard, A., and Fiessinger, N.: Bull. Soc. franç de derm., 1909, xx., 162.
Du Bois: Acta Derm. Vener., 1924, v., 1.
Dyke, S. C.: THE LANCET, 1919, ii., 328.
Falk, A.: Arch. Derm. und Syph., 1921, cxxix., 299.
Gager, E. C.: Jour. Amer. Med. Assoc., 1922, lxxviii., 914.
Gans, O.: Histologie der Hautkrankheiten, Berlin, 1925, 1., 384.
Graham-Little, E.: See Little.
Haase, M.: Jour. Cut. Dis., 1916, xxxiv., 817.
Harrison, L. W.: Venereal Disease in General Practice, London, 1918, p. 108.
Haslund, O.: Ugesk. f. laeger, 1913, lxxv., 325; Hospitalstidende, 1913, lv.
Jeanselme, E.: Presse. Méd., Dec., 1895.
Keim, H. L.: Arch. Derm. and Syph., 1924, ix., 423; 1930, xxii., 627.
Lees, D.: Edin. Med. Jour., 1922, xxviii., 99.
Little, E. G.: Practitioner, 1916, xcvii., 531; Med. Annual, Bristol, 1918, p. 300.
Lundie, R. A.: Brit. Jour. Surg., 1918, v., 389.
Mehliss: Quoted Fraser's Monograph on Gonorrhœa, London, 1923, p. 370.
Montpelier: Ann. malad. vénér., 1918.
Roark, B. H. L.: Jour. Amer. Med. Assoc., 1912, lix., 2039.
Robert: Thèse de Paris, 1897; Annales de Derm. et de Syph., 1897, viii., 1053.
Rostenberg, A., and Silver, H.: Arch. Derm. and Syph., 1927, xvi., 745.
Scholtz, M.: Arch. Derm. and Syph., 1899, xlix., 1; 1924, ix., 423; 1927, xv ,165.
Simpson, F. E.: Jour. Amer. Med. Assoc., 1917, lxviii., 1169.
Sobotka, E.: Derm. Woch., 1913, lvi., 181.
Stillians, A. W., and Zeisler, E. P.: Arch. Derm. and Syph., 1923, viii., 393.
Strandberg, J., and Hedenicus, I.: Nordisk. Med. Arch., 1919, li., 521.
Vidal, E.: Ann. Derm. et Syph., 1893, iv., 3.
Wadsack, E.: Berlin klin. Woch., 1906, xlii., i. 966.
Wailsch, L.: Arch. Derm. und Syph., 1910, civ., 195 and 453.
Williams, A. W.: THE LANCET, 1910, ii., 1769.
Woodward, H. M.: Ibid., 1918, i., 294.

CALCIUM AND PHOSPHORUS METABOLISM IN LATE RICKETS.

A CASE WITH PARATHYROID HYPERPLASIA.

BY G. C. LINDER, M.D., M.R.C.P. LOND.,

AND

D. G. M. VADAS, M.B., CH.B.

(*From the Department of Pathology, University of Capetown.*)

THE occurrence of hyperparathyroidism in some diseases of bone is now established, and is recognised by the presence of an excessive concentration of calcium in the serum with a low concentration of inorganic phosphorus, and by an increased excretion of calcium, particularly in the urine. Since the success of Mandl's [1] experiment in removing a parathyroid in osteitis fibrosa, many cases of bone malacia and hyperparathyroidism have been recognised and treated in the same way with a considerable measure of success; these cases have been collected by Hunter [2] and by Barr and Bulger.[3] Such results in desperate conditions make it of importance that these opportunities should not be missed, but because of their situation large tumours of the parathyroid may be unrecognisable without exploration, and it is unusual for palpation of the neck to give a clue. The diagnosis is made on biochemical grounds as a rule, and may be made with confidence when the syndrome is complete; but in view of the varying response of different individuals to injections of parathyroid hormone and of the same individual at different times,[4] it is possible that parathyroid overactivity may occur without producing the complete syndrome, and that the parathyroids should be explored when the indications of hyperparathyroidism are incomplete. Observations on such a case are recorded here.

CASE REPORT.

The patient was a coloured errand boy who at the age of 15 underwent a very brief course of antisyphilitic treatment for vague pains in the shins; the diagnosis was doubtful, but the treatment was successful, and the pains vanished. Two years later he began to have pain in his knees and difficulty in walking. The pain spread slowly through his limbs and body and he became weak and finally unable to work. He was an orphan, and when he was 17 his earnings became the sole support of himself and two grandparents; their diet consisted of bread, tea, and scraps of meat, with potato and rice once a week. He was quite definite that the pains had begun before this spell of semi-starvation.

Condition on admission.—He was admitted to hospital in April, 1928, at the age of 19 years. He had the waddling gait of a muscular dystrophy, but there was no localised wasting or hypertrophy, and there were no neurological changes. The cerebro-spinal fluid contained 10 cells per c.mm., and gave a weak positive Wassermann reaction; the blood Wassermann was negative. The urine was not abnormal but was frequently alkaline. The serum calcium was 12·6 and 14·0 mg., and the inorganic phosphorus 1·2 mg. per 100 c.cm. Skiagrams showed obliteration of normal bone structure, decalcification, and patchy sclerosis of the bones of the pelvis, which had not united, and similar changes in the upper ends of the femora. The pelvic cavity was distorted. The head of the femur and the acetabulum were ill-defined. The compact bone of the femur and tibia was thin, and the trabeculæ frail. The epiphyseal cartilages of the wrists were thick, corresponding to an age of 13 years, and the radial epiphyses were wide and cupped, but the line of ossification was regular. The other epiphyses showed similar delay in uniting. The ribs were poorly calcified, and the costochondral junctions were enlarged. No cysts were found. He was treated with a liberal diet, crude cod-liver oil, and cod-liver oil concentrate, and with potassium iodide and mercury. After ten months there was much less pain, but the X rays showed no change. He was discharged.

Condition on readmission.—The present observations began on his readmission in July, 1929. He was bedridden, weak, and full of pain. He had been reasonably fed and nutrition was good. The chest was very deformed, the upper part having collapsed, the sternum projecting forwards, and the lower ribs being splayed out. The whole thorax was soft and yielding. There was marked kyphosis and scoliosis; the neck was shortened and felt weak and painful. The long bones remained straight and the limbs were not shortened. The muscles were weak. The remainder of the physical examination showed nothing of note. The urine contained no sugar or protein, and no calcium deposit; the specific gravity was 1010 to 1038. The serum calcium was 9·0 mg. per cent.; this was the only occasion before the operation on which it was under 11 mg. The inorganic phosphorus was 1·5 mg. The stools and fat absorption were normal.

On a liberal diet, cod-liver oil and 18,000 units [5] of irradiated ergosterol a day, his condition became worse. The inorganic phosphorus fell to under 1 mg. in December.

The calcium and phosphorus balance were positive on a daily diet containing 450 mg. of calcium and 900 mg. of phosphorus (see Chart, period 1), but when the calcium intake was reduced to 210 mg. the balance of calcium became negative (periods 2 and 3); on such an intake the calcium balance is normally negative,[6] and the loss in this case was not abnormal. The urine contained 40 to 100 mg. of calcium per day, a normal amount. In period 4 the addition of sodium phosphate (Na_2HPO_4) possibly caused a small rise in serum phosphorus, but the loss of calcium was increased. In February, 1930, sugar appeared in the urine with a normal blood-sugar, and the blood-urea was 60 mg. per cent., although the urine remained of good concentration and contained 2·8 per cent. of urea in a urea-concentration test. There were no clinical signs of nephritis, but the urine contained a few red blood-cells.

On April 9th Prof. C. M. Saint explored the neck. External to the right lobe of the thyroid was a small ovoid body, ¾ in. by ½ in., of uncertain nature; this and part of the thyroid were removed. The ovoid body weighed 850 mg. and proved to be composed of parathyroid tissue. On section it had a uniform appearance, being composed of epithelial cells and very scanty connective tissue. The epithelial cells had abundant protoplasm showing neutrophil staining, and the nuclei showed a fine chromatin network. Some of these epithelial cells were arranged in sheets, and here they were polygonal in form; elsewhere they were columnar or even palisade, and were arranged in groups, usually one cell deep around a central blood capillary. Under the capsule and adjacent to the trabeculæ passing into the gland were epithelial cells resembling the polygonal cells, but having clear, almost unstained protoplasm; these were identical with the "principal" cells of the normal parathyroid (Welsh [7]). There was no fatty tissue among the epithelial cells. No oxyphil cells were present. It was difficult to be sure whether the condition was a hyperplasia or an adenoma of the parathyroid, but the histological picture on the whole suggested a hyperplasia. There were no manifestations of tetany after the operation. The serum calcium during the following three months was certainly slightly lower, but it then rose to its former somewhat high level. The serum inorganic phosphorus was increased above the level of the preceding four months, but remained much below the normal level of 3 mg. The blood-urea fell to 40 mg., and sugar disappeared from the urine. The disabling pain gradually lessened, and the chief disability of which he continued to complain was pain in the neck, which occurred as soon as he sat up and had to support the weight of his head.

On a diet the same as in period 1 he was, in period 5, retaining more calcium but, on account of a doubled urinary phosphorus excretion, the phosphorus balance was negative. The addition of milk (period 6) gave a small positive balance of both elements. Addition of sodium phosphate (period 7) upset the calcium balance (cf. period 4), but by giving calcium lactate in the forenoon and sodium phosphate in the afternoon (period 8) a considerable positive balance of calcium and phosphorus was obtained. Addition of ergosterol and cod-liver oil to this had no effect.

In August, 1930, the slight improvement was maintained, but the skiagrams showed no change in the calcification of the bones, and the state of the epiphyses was identical with their state in 1928. The patient was transferred to the infirmary. Visits to him in October and November showed no further progress, but the serum phosphorus fell to 1·25 and 0·94 mg., which was attributed to the relative poverty of the infirmary diet in vitamins and to lack of sunlight.

DISCUSSION.

In an exhaustive discussion of the bone malacias Dawson and Struthers [8] emphasise the similarities in the processes underlying osteomalacia, rickets, late rickets, and osteitis fibrosa. The distinctions depend on differences in age of onset and difference in preponderance of the various processes concerned. In rickets endochondral bone formation is upset; in osteomalacia, a disease of adult life, this has already ceased. In rickets the bones of the limbs are most affected, in osteomalacia the pelvis and vertebræ. In late rickets epiphyseal changes are slight and decalcification of the diaphyses and of cancellous and endosteal bone predominant. Osteitis fibrosa is characterised by the extensive development of fibrous tissue in the bones, and the formation of cysts and tumour-like areas. In all, the serum inorganic phosphorus is much reduced, which distinguishes them from renal rickets, in which the renal insufficiency causes phosphorus retention and a high serum inorganic phosphorus.[9] The serum calcium is usually low in osteomalacia,[10] and normal or low in rickets,[11] but in osteitis fibrosa generalisata it is frequently raised.[2 3]

The case described showed the accentuation of the malacia in the bones of the trunk characteristic of osteomalacia. It was distinguished from osteomalacia by its onset in adolescence, the widening of the epiphyses and the lack of ossification in the epiphyseal cartilages, while the age-incidence, the relative preservation of the long bones, and the good definition of the epiphyseal lines separate it from rickets. Late rickets appeared to be the correct classification.

Large doses of parathyroid hormone will cause absorption of bone [12] and a state resembling osteitis fibrosa [13]; the serum calcium is raised much above the normal level and the excretion of calcium is increased, especially in the urine.[14] The serum inorganic phosphorus falls unless the amount of hormone is excessive.[15] Natural hyperparathyroidism appears to produce the same results. In many cases of bone dystrophy, and most often in osteitis fibrosa generallisata, parathyroid tumours or hyperplasias have been found, and in some a high serum and urinary calcium have suggested that the parathyroid abnormality was the cause of the malacia, a suggestion sometimes supported by the result of excision. This subject has been reviewed recently by Barr and Bulger.[3]

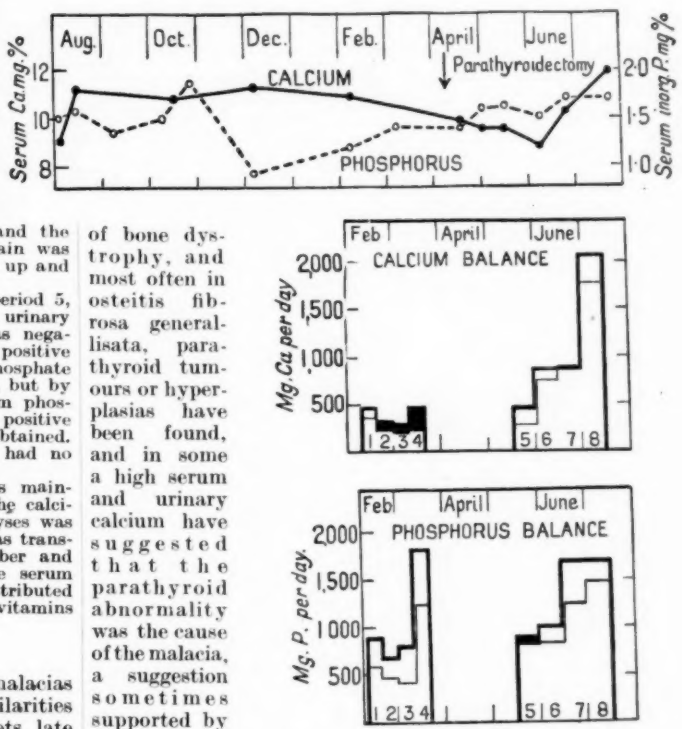


Chart showing changes in serum calcium and inorganic phosphorus above, and in calcium and phosphorus balance below. The heavy line indicates the intake and the lighter the output; shaded areas represent negative balances. The metabolism periods are numbered, and the diet and medication in each is indicated in the text. (1 = ward diet; 2 and 3 = low calcium diet; 4 = low calcium diet plus sodium phosphate.)

The parathyroids readily hypertrophy under influences inimical to good bone formation; examples are rickets in rats [16] and in children,[17] want of sunlight,[18] or a low intake of calcium.[19] Parathyroid hyperplasia has been found in secondary carcinomatous infiltration of bone [20] and in multiple myelomata.[3] In these the hyperplasia is certainly a sequel or concomitant and not the cause of the bone disorder, and this is probably true also in osteomalacia and late rickets. Barr and Bulger consider the possibility that even in osteitis fibrosa the primary disorder is in the bones. A comparison may be made with Graves's disease, in which the thyroid is persuaded to play the leading part but the fundamental disorder may lie elsewhere. In many of these cases, however, the parathyroid is undoubtedly acting

beyond the needs of the occasion, even if these be increased, and this activity becomes a factor aggravating the malacia. Excision of such overacting glands leads to the relief of pain, cessation of excessive calcium excretion, and to some degree of recalcification. The serum calcium and inorganic phosphorus return to normal figures. The final result, which may be attained only after a prolonged period, is seldom recorded, but may be excellent.

One of the most striking features of this case was the low level of the serum inorganic phosphorus, which resisted the influence of diet, light, and vitamins. It would probably have been better to have employed large doses of cod-liver oil concentrate instead of the irradiated ergosterol, since there is some evidence that the concentrate is the more effective in such cases.[21 22 23] Such resistance is not customary in rickets and osteomalacia,[10] and this forced us to the consideration of hyperparathyroidism. In support of this was the abnormally high serum calcium in his early records and its persistence at a high normal level. The absence of excessive calcium excretion was a strong point to the contrary, but this might be explained on the assumption that the parathyroids, although no longer able to cause gross hypercalcæmia and calcium loss, might yet be able to prevent recalcification by depressing the level of the serum inorganic phosphorus.

The parathyroid removed weighed 850 mg.; the normal weight of a parathyroid is given by Quain [24] as between 10 and 100 mg., and by Schafer [25] as 30 mg. It is certain that great variations occur,[26] but this gland is definitely outside the normal range. Its condition was one of simple hyperplasia, but it was evidently not very active, for the biochemical effects of its removal—though perceptible—were small, and it was evident that this parathyroid was not directly responsible for the low serum inorganic phosphorus.

The low threshold of the kidney for phosphorus was probably a factor of importance in causing the persistent depression of inorganic phosphorus in the serum. Phosphorus was excreted and concentrated 50 to 100 times when the serum phosphorus was around 1 mg. per cent.; the normal threshold is 2·8 mg.[27] but the continued excretion and concentration of phosphorus appears not to be uncommon in abnormalities of calcium phosphorus metabolism with a low serum phosphorus.[28] The changes in the threshold for sugar and in the blood-urea were further evidences of changes in the function of the kidney. Minor changes in renal function may not be uncommon in the bone malacias,[29] but are small in degree when compared with those found in renal rickets.

The clinical result of the excision was not dramatic, but the patient's pain was considerably less afterwards. Such relief by itself would be worth attaining by a comparatively simple operation, but the possibility of producing tetany must be remembered. The possibility always arises, in assessing the result of treatment in these cases, that subsequent improvement is due to a natural remission of the disease, and a decision can only be obtained from the study of further cases.

SUMMARY.

1. A case of late rickets with a partial hyperparathyroid syndrome is described.

2. The effect of excision of an enlarged parathyroid was the relief of pain without any effective change in calcium phosphorus metabolism.

The methods employed were those described in an earlier paper.[28]

We wish to thank Prof. A. W. Falconer and Prof. C. M. Saint for permission to study this case while under their care, and to Prof. B. J. Ryrie for his interest and helpful criticism.

BIBLIOGRAPHY.

1. Mandl, F.: Zentralbl. f. Chir., 1926, liii., 260.
2. Hunter, D.: Proc. Roy. Soc. Med., 1929, xxiii., 227.
3. Barr, D. P., and Bulger, H. A.: Amer. Jour. Med. Sci., Phil., 1930, clxxix., 447.
4. Albright, F., Bauer, W., Ropes, M., and Aub, J. C.: Jour. Clin. Invest., 1929, vii., 139.
5. Coward, K. H.: Quart. Jour. Pharm., 1928, i., 27.
6. Bauer, Albright, and Aub: Jour. Clin. Invest., 1929, vii., 75.
7. Welsh, D. A.: Jour. Anat. and Physiol., 1898, xxxii., 383.
8. Dawson, J. W., and Struthers, J. W.: Edin. Med. Jour., 1923, n.s., xxx., 421.
9. Spence, J. C.: Brit. Med. Jour., 1928, ii., 1124.
10. Miles, L. M., and Feng, C. T.: Jour. Exper. Med., 1925, xli., 137.
11. Howland, J., and Kramer, B.: Amer. Jour. Dis. Child., 1921, xxii., 105.
12. Bauer, Aub, and Albright: Jour. Exp. Med., 1929, xlix., 145.
13. Bodansky, A., Blair, J. E., and Jaffe, H. L.: Jour. Biol. Chem., 1930, lxxxviii., 629.
14. Greenwald, I., and Gross, J.: Ibid., 1925, lxvi., 217.
15. Bauer, Albright, and Aub,: Jour. Clin. Invest., 1930, viii., 229.
16. Erdheim, J., Rachitis und Epithelkörperchen, Vienna, 1914.
17. Pappenheimer, A. M., and Minor, J.: Proc. N.Y. Path. Soc., 1921, xxi., 98.
18. Higgins, G. M., and Sheard, C.: Amer. Jour. Physiol., 1928, lxxxv., 299.
19. Marine, D.: Proc. Soc. Exp. Biol. and Med., 1913, xi., 117.
20. Klemperer, P.: Surg., Gyn., and Obst., 1923, xxxvi., 11.
21. Barnes, D. J., Brady, M. J., and James, E. M.: Amer. Jour. Dis. Child., 1930, xxxix., 45.
22. Hess, A. F., Weinstock, M., Rivkin, H., and Gross: Jour. Biol. Chem., 1930, lxxxvii., 37.
23. Gargill, S. L., Gilligan, D. R., and Blumgart, H. L.: Arch. Intern. Med., 1930, xlv., 879.
24. Quain's Elements of Anatomy, 11th ed., vol. ii., part ii., J. Symington, London, 1914.
25. Schafer, E. S.: The Endocrine Organs, London, 1924.
26. Brown, W. H., Pearce, L., and Van Allen, C. M.: Jour. Exper. Med., 1925, xlii, 69.
27. Brain, R. T., Kay, H. D., and Marshall, P. G.: Biochem. Jour., Camb., 1928, xxii., 628.
28. Linder, G. C., and Harris, C. F.: Quart. Jour. Med., 1930, xxiii., 195.
29. Boyd, J. D., Milgram, J. E., and Stearns, G.: Jour. Amer. Med. Assoc., 1929, xciii., 684.

EMPYEMA THORACIS.

A METHOD OF MAINTAINING NEGATIVE PRESSURE DRAINAGE.

BY A. TUDOR EDWARDS, M.D., M.CHIR. CAMB., F.R.C.S. ENG.,

SURGEON TO THE BROMPTON HOSPITAL; SURGEON IN CHARGE OF OUT-PATIENTS, WESTMINSTER HOSPITAL.

THE necessity of maintaining air-tight drainage of the chest after open thoracotomy for empyema is now an accepted part of treatment. It is not proposed to consider here the time at which an infected pleural effusion should be drained, this has been widely discussed in various publications; but in a large majority of empyemata in adults the time does arise when aspiration or intercostal drainage must be replaced by some method which will allow more complete evacuation of the contents of the empyema cavity.

It is at this stage that some comparatively simple and yet efficient method, which allows of (*a*) adequate drainage, (*b*) maintenance of a negative pressure within the infected cavity, and (*c*) irrigation of the cavity without risk, should be adopted.

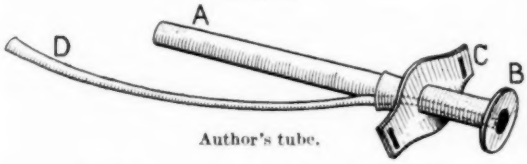
With these objects in view a rubber tube of special structure was made for me some seven years ago and, as apart from some small modifications, it has stood the test of time, this method of treatment of empyema appears worthy of record.

The tube consists of a fairly large-bore main tube (A), made in four sizes, Nos. 42, 45, 48, 51, French scale, at the end of which is a flat circular flange (B). Passing into the wall of the main tube about 2¼ inches from the flange is a

fine tube (D) of the size commonly used for Carrel-Dakin treatment. This opens on the surface of the flange adjacent to the main opening. The opposite end is free from the main tube and has a funnel-shaped opening. A second flange with a rubber cuff, movable on the double tube to allow adjustment to the varying thickness of the chest wall, completes the essential part of the apparatus (C). (Fig. 1.)

The method of use is as follows: After aspiration of definite pus from the pleural cavity, the area of

FIG. 1.



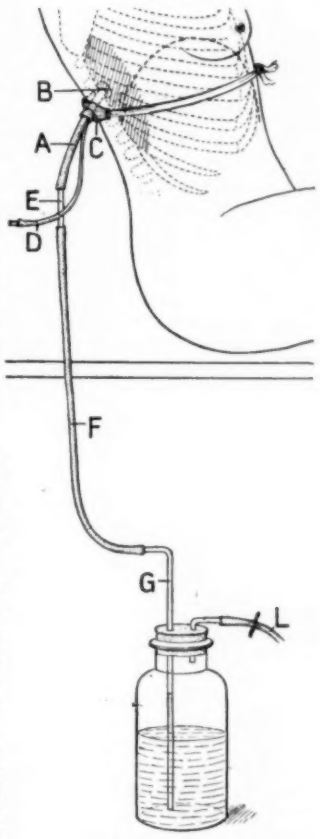
Author's tube.

proposed rib resection is infiltrated with a local anæsthetic and incised down to the rib. A portion, about 1½ inches, is resected and the posterior periosteum and parietal pleura incised for about one inch. The excessive pus as it comes out of the pleura is removed by suction and then by means of the suction tube the whole of the fluid contents of the empyema cavity are evacuated. All free flakes are removed and the walls of the cavity are gently wiped to remove the lining lymph membrane which will tend to impede subsequent drainage. The flange of the drainage-tube is then folded as small as possible in sponge-holding forceps and introduced into the cavity. The forceps on opening allow expansion of the flange and are then withdrawn, leaving the tube in situ. If the opening in the pleura has been enlarged by the manipulations sufficiently to allow easy withdrawal of the flange it should be partially sutured around the tube. The superficial structures are approximated with figure-of-eight silkworm gut sutures passing through muscles in the deeper parts and the skin and subcutaneous tissues superficially. The outer flange is then adjusted firmly to the chest wall, a single layer of gauze only intervening. Tapes are threaded into the lateral openings in this flange and fastened around the chest. Dressings are adjusted under a many-tailed bandage. Both tubes are controlled by spigots.

When the patient has been comfortably settled in bed the spigot in the main tube is removed and it is connected with a tube passing beneath fluid in a bottle beneath the bed (E, F, G). (Fig. 2.) The patient is now requested to cough and air will be forced out of the empyema cavity and the drainage system and will bubble through the fluid in the bottle. Following this either the lung will expand to a degree corresponding to the air evacuated or the fluid will be drawn up the glass tube in the lower end of the drainage system, which column of fluid will maintain a constant pull or negative pressure corresponding to its height upon the visceral pleura. Before disconnecting the bottle for purposes of evacuation of the fluid and the purulent contents, the tube (F) is closed off by means of a clip or artery forceps, to prevent air entering the empyema cavity, and this is not removed until the tube and bottle are reconnected. Forty-eight hours later, irrigation of the cavity is commenced but before any large quantity of fluid is introduced it is essential to ensure that no bronchial fistula is present. A small quantity of Carrel-Dakin's solution is drawn up into a syringe, the irrigating tube is compressed with the fingers and the spigot withdrawn. The syringe is connected and, releasing the compression on the tube, the fluid is allowed to enter the cavity. An attempt is now made by altering the posture of the patient to ensure the fluid flowing over every part of the visceral pleura. An irritating cough or a cough associated with the patient tasting the fluid is evidence of a bronchial fistula of greater or lesser size and contra-indicates filling of the empyema cavity. (Careful instillations of small quantities may be possible if the fistula is small and high in the cavity.) If there is no evidence of a bronchial fistula the cavity may be almost completely filled by raising the main tube and placing the patient in such a position that the drainage opening is uppermost.

The great and apparently the only risk, in the absence of a bronchial fistula, of irrigation of an empyema is in the production of a positive pressure which may lead to air embolism. By irrigating through the small tube with free drainage via the main tube into the bottle this risk is eliminated. (Free drainage through the latter is shown by the movements of the columns of fluid during respiration.)

FIG 2.



The tube in use.

Irrigation is carried out two or three times daily, but in particularly severe infections a continuous irrigation may be arranged by connecting the irrigating tube (D) to a slow drip apparatus such as is used for continuous rectal salines. Superficial dressings are carried out daily but no attempt is made to remove the tube until the empyema cavity is obliterated. This can be confirmed by X ray examination, or if this is not available, by disconnecting the empyema tube from the bottle, &c., and passing a gum elastic bougie through the lumen. The tubes vary slightly in length from 8 to 8¼ inches, and when the bougie comes against the lung at this distance from the entrance to the tube it can be inferred that the lung is fully expanded. The tube is then withdrawn and only superficial dressings should be applied as the track in the chest wall will heal in four or five days.

In chronic empyema, due either to delayed diagnosis or accompanied by sinus formation and resulting from inadequate treatment, it may be necessary to increase the negative pressure within the cavity. This can

easily be obtained by attaching a Potain's syringe to the small rubber tube (L) and exhausting the air from the drainage bottle. The tube is then compressed by a clamp and the syringe removed. This operation is repeated as and when required. The negative pressure in the whole drainage system may be measured by placing a T-tube in the drainage-tube between the chest and drainage bottle, the vertical part being led off to a manometer.

I am indebted to the Genito-Urinary Manufacturing Co., Ltd., 28, Devonshire-street, W.1, for their coöperation both in the making of the original tubes and the subsequent modifications.

THE NEUROLOGICAL COMPLICATIONS OF SERUM TREATMENT.

WITH REPORT OF A CASE.

By I. M. Allen, M.D. N.Z., M.R.C.P. Lond.,
REGISTRAR, NATIONAL HOSPITAL, QUEEN-SQUARE, LONDON.

Neurological complications of serum treatment are very uncommon. During the 40 years since this form of treatment was instituted reports of less than 50 cases have appeared in the literature and of only one case in this country. It is possible, however, that minor neurological complications are more common than they appear to be, especially as in some of the cases reported by French observers the disability was slight and discovered accidentally only at a long interval after treatment with serum. The following case is reported because of the unusual ætiology of the neurological condition concerned and of the problems in diagnosis which naturally arise from it.

Accidents associated with the use of sera in treatment were first mentioned by Roux, Martin, and Chaillons at a medical congress in Budapest in 1894, while later they were grouped by von Pirquet and Schick under the term serum-sickness. Cases of paralysis resulting from the use of serum were reported early—by Engelman in 1897, by Grünberger in 1904, and by Gangolphe and Gardère in 1908. These writers discussed the rôle of serum treatment in the causation of the paralysis without, however, definitely relating the two conditions. In 1910 Thaon recognised the association of the paralysis with serum-sickness and with serum treatment, but attracted little attention. Subsequently, however, accounts of certain neurological complications of serum treatment were given by Lhermitte in 1919, by Carniol, Durand, and Goujard in 1920, by Étienne in 1928, and by Foster Kennedy in 1929; while in 1923 Rolleston drew attention to reports of such cases.

CASE REPORT.

Brachial neuritis and amyotrophy associated with serum-sickness.—On Jan. 1st, 1931, a male, aged 22 years, was admitted to the Hornsey and Finchley Isolation Hospital on the fourth day of a typical attack of scarlet fever. He was given 10 c.cm. of anti-scarlet fever serum. The following day his temperature was normal. On the twelfth day after the injection of serum the temperature rose to 100·5°F., an urticarial eruption appeared, and the patient complained of pains in the limbs. On the fifteenth day he complained that he could not hold up his right arm. On the following day he complained again of being unable to raise the right arm, and later in the day of pins and needles in the outer aspect of the right forearm and the first and second fingers of the right hand.

He was examined by me on the seventeenth day after the injection of serum, when he complained of being unable to raise the right arm and of aching in the right shoulder. There was definite wasting of the right deltoid, slight wasting of the supraspinatus, doubtful wasting of the infraspinatus, and some winging of the right scapula. Abduction of the right upper arm was limited, and it was impossible to raise the right elbow more than a short distance from the side. The movement of pushing the right hand forward with the forearm extended was weak on the right side compared with the same movement on the left side. The other muscles of the right shoulder-girdle and upper limb were normal, and those of the left shoulder-girdle and upper limb were also normal. There was moderate diminution of sensation to cotton-wool and pinprick over the outer aspect of the right upper arm, most obvious at the level of the insertion of the deltoid. Elsewhere the motor and sensory functions were normal. The supinator, biceps and triceps jerks were present and equal on the two sides. The abdominal reflexes were present and equal; the knee- and ankle-jerks present and equal, and both plantar reflexes flexor.

On the nineteenth day after the injection of serum there was slight aching in the left upper limb in the region of the shoulder, but no impairment of movement. On the twenty-third day there was vomiting, and albumin appeared in the urine—the first symptoms of what proved to be an attack of acute nephritis. On the twenty-fifth day there was no movement of abduction in the right upper arm. Five weeks after the injection of serum and three weeks after the onset of the paralysis, there was marked wasting of the right deltoid, but sensation was returning over the outer aspect of the right shoulder. Seven weeks after the onset sensation was normal, but there was still definite wasting of the right deltoid.

Unfortunately, owing to the supervention of acute nephritis, it was impossible to carry out any local treatment of the affected muscles beyond relieving the strain upon them as much as possible. Nevertheless, gradual improvement occurred and, at the time of discharge 13 weeks after the onset of the paralysis, there remained only some impairment of function and wasting of the right deltoid.

In this case the paralysis supervened a few days after the onset of serum-sickness and while the latter was at its height, was most pronounced in the right deltoid, but also affected the spinati and the serratus magnus to a lesser degree. It was accompanied by spontaneous sensations which were evidently radicular in origin; and by impairment of sensation over an area corresponding to the distribution of the fifth cervical sensory root. Pains, also apparently of a radicular type, appeared about the left shoulder too, but disappeared without the development of any motor disability. Pronounced wasting of one of the affected muscles was a prominent feature. Recovery was gradual but slow, and independent of any local treatment.

The clinical picture was evidently that of a radiculitis affecting chiefly the fifth cervical root on the right side, but also involving in a minor degree one or two sensory roots below that level and also sensory roots on the left side. The relation of the condition to the serum-sickness was evident, and was identical with that of the cases of amyotrophy reported in France. In this case, however, subjective sensory disturbances were less obvious, and the objective sensory changes more pronounced than in most of the cases previously reported.

THE CLINICAL COURSE.

In the 42 cases which I have been able to review, the neurological condition followed the use of anti-tetanic serum in 26 cases, of antistreptococcal and antidiphtheritic serum in four cases each, of anti-pneumococcal and anti-scarlet fever serum in three cases each, and of antityphoid inoculation and an unidentified antituberculous serum in one case each. In many cases it followed the first injection of the serum, while in others it followed a second or subsequent injection given some years after the first. In the majority of cases it was associated with the more common symptoms of serum-sickness, but in a few

cases it occurred without any evidence of serum-sickness, though at the interval after the injection of serum at which serum-sickness might have been expected to appear.

In every case the clinical course follows the same general type. From five to ten days after the injection of serum, usually about the eighth day, the patient develops the usual symptoms of serum-sickness—an urticarial rash of general distribution, pains in the limbs and joints, in some cases swelling of individual joints and fever, and in some cases headache and vomiting. After an interval of from two to five days the pains become very severe, intermittent and stabbing, in some cases in both upper and lower limbs, in others in the distribution of a peripheral nerve, but in the majority of cases in one or more segmental areas on one or both sides. This pain continues in a severe form for a period varying from two days to one month. In most cases muscular weakness and wasting appear early, the reflexes in the corresponding segments are diminished or abolished and, in the lower motor neurone group, variations in the electrical reactions occur. Objective sensory changes are slight or completely absent. Rarely the original local pain is slight and transient, while occasionally the muscular weakness is not discovered until the patient tries to return to work. Improvement in the motor functions occurs, and complete recovery takes place in from one to 18 months, though occasionally some residual weakness and wasting persist.

THE CLINICAL FEATURES.

The cases fall naturally into four distinct groups, which are most conveniently considered separately. They may be apparently *radicular* in type, with the motor and sensory changes confined to one or both upper limbs, and especially to the proximal portion of the limb. Less often they appear to be *neuritic* in type, the changes occurring entirely in the distribution of one or more peripheral nerves. Occasionally they are apparently of a *polyneuritic* type, the clinical picture resembling that of polyneuritis—either motor and sensory mixed, or entirely motor. Rarely they present neurological complications, which appear to be *central* in origin, the symptoms and physical signs indicating a disturbance within the skull or in the brain itself.

(1) The *radicular* type is the most common, supplying 23 out of the 42 cases under review. Cases of this type have been described by Thaon, Vincent and Richet, Caulhois, Dyke, Lhermitte, Marchal, Mouriquand and Dechaume and Ravault, Foster Kennedy, Goujard, Sainton and Descauts and Rogers, Benech and Brénas, S. Thomas, Souques and Lafourcade and Terris, and by Léri and Escalier. The condition has followed chiefly the use of antitetanic serum, but also that of antidiphtheritic, antistreptococcal, and anti-scarlet fever serum. Probably the best clinical description is that given by Lhermitte in 1924, upon which the following account of the condition is based.

From five to ten days after the injection of serum the general symptoms of serum-sickness appear. After from two to five days, while the serum-sickness is still active, the patient complains of severe, stabbing, and intermittent pain radiating into one or both upper limbs, or into one or both shoulders. This pain disappears in two or three days, but when severe may persist for from five to 30 days. Shortly after the appearance of the pain the patient notices some motor disability in one or both upper limbs, but occasionally he may not notice it until the pain has disappeared.

On examination paralysis of the muscles of one or both upper limbs is found, those in the proximal portion of the limb being affected chiefly or alone. The corresponding movements are weak or impossible. Of the 23 cases under review both upper limbs were affected in nine and one upper limb in 14. There is rapid wasting of the affected muscles, and in one case, reported by Sainton and Descauts and Rogers, fibrillation was present in the outer part of the triceps. The muscles most often affected are those supplied from the fifth and sixth cervical segments—the deltoid, spinati, serratus magnus, biceps, brachialis anticus, and triceps. Most often the changes are confined to the deltoid, spinati, and serratus magnus. Occasionally the supinators of the forearm and the extensors of the wrist are affected as well, and at the upper level the anterior part of the trapezius, the rhomboids, and the pectoralis major may be involved. Generally, however, the paralyses are limited to a number of the muscles supplied from the fifth and sixth cervical segments and present the picture of an incomplete or complete Erb-Duchenne paralysis of acute onset. Rarely one muscle alone is affected, most often the serratus magnus; but when several muscles are involved the brunt of the disability appears to fall upon a portion or the whole of one muscle, usually the deltoid, leaving the others moderately or slightly affected. Again, when the two upper limbs are involved, the same individual muscles on the two sides are not necessarily those most severely affected. For example, on one side the serratus magnus may be the muscle completely paralysed, while on the other side the spinati may be most affected. The rapid appearance of wasting in the affected muscles has already been mentioned. The electrical reactions vary from simple diminution of faradic excitability to reaction of degeneration or complete absence of any response, according to the degree to which the particular muscle is involved.

Rarely, when the biceps, triceps, and long supinator are affected, the corresponding deep reflexes are diminished or absent. Objective sensory changes are usually absent, though occasionally an area of hypoæsthesia and hypalgesia is found over the outer aspect of the shoulder and upper arm. Pressure over the trunks of the brachial plexus is usually painless, but sometimes pressure over the affected muscles produces severe pain.

With the relief of pain some improvement in the motor functions takes place, but frequently wasting persists for a long time. Just as during the acute phase all the muscles supplied by the fifth and sixth cervical roots are not equally affected, so during recovery the return of function varies considerably with the individual muscles.

(2) Cases of the *neuritic* type, suggesting involvement of a peripheral nerve, have been described by Sicard and Cantaloube, Katzenelbogen, Étienne and Benech, A. Thomas, and by Bourrat. Six of the cases under review were of this type. In four the musculospiral nerve appeared to be involved: in one case above the branch to the triceps; in two cases below the branch to the triceps; and in one case on both sides. In one case the external popliteal nerve on one side was involved, and in one case both sciatic nerves appeared to be affected. In the latter case it was possible that the nerve-roots were involved and not the peripheral nerves. The clinical picture develops in the same way as in those cases described as radicular in type. The severe local pain appears in the distribution of the affected nerve, and paralysis

appears suddenly within 24 or 48 hours. The clinical picture may be understood from the following summary of Sicard and Cantaloube's first case.

A young man received several superficial wounds as the result of an accident, and as a prophylactic measure was injected with 20 c.cm. of antitetanic serum. On the eighth day after the injection he developed serum-sickness, and 48 hours later had a severe attack of pain in the left upper limb. By the next morning he had developed drop-wrist on the left side. Ten days later there was loss of electrical excitability in the left musculospiral nerve, and paralysis of and reaction of degeneration in all the muscles supplied by the nerve below the branch to the triceps.

(3) The *polyneuritic* type occurred in seven cases. Such cases have been described by Sézary and Dessaint, Foster Kennedy, Étienne, Babonneix, Filotico, and by Bourrat. In the majority the condition developed under the same circumstances and in the same relation to the serum-sickness as in the other groups. In some cases a frank polyneuritis develops, with general pains, clumsiness of the limbs, motor weakness, diminution of sensation in the distal parts of the limbs, ataxic or steppage gait, and diminution or loss of tendon reflexes. Such cases frequently recover rapidly; Bourrat's patient, in whom the condition developed with serum-sickness after an injection of antistreptococcal serum, was quite well in six weeks. Occasionally the objective sensory changes are absent and the case is characterised by clumsiness of the limbs, ataxic gait and diminution or loss of tendon reflexes, a clinical picture grouped under the term "pseudo-tabes" by French writers. Filotico's case was unusual in that, in addition to the presence of fully developed motor and sensory symptoms of polyneuritis, there was complete paralysis of the left facial nerve of a peripheral type, with loss of the sense taste over the left half of the tongue.

(4) There were six cases of the *central* type, all of them with physical signs which raised important questions in diagnosis. They have been described by Mason, Morichau-Beauchant, Foster Kennedy, and by Bourrat. In five cases papillœdema was present. In two of Mason's patients papillœdema appeared after the injection of antipneumococcal serum, and disappeared later; while in his third case death occurred while it was still evident. In Morichau-Beauchant's case a right-sided hemiparesis appeared two days after the onset of serum-sickness. Bourrat recorded the case of a patient who developed serum-sickness and severe headache after the injection of a prophylactic dose of antitetanic serum. On the fifteenth day after the injection the patient developed pain in the left orbit and amblyopia in the left eye. On examination, swelling of the left optic disc, engorgement of the retinal veins, and a central scotoma in the left eye were found. When examined two years later, the patient showed no physical signs. In Foster Kennedy's case serum-sickness developed four days after a prophylactic injection of serum against scarlet fever. The patient showed signs of a meningeal reaction at the same time, and three days later had developed aphasia and a right-sided hemiparesis. When examined five days after the onset, he showed a right hemiplegia, total alexia, jargon aphasia, persistent headache, and the clinical picture of meningeal irritation. There was extreme swelling of both optic discs, and both retinæ were also œdematous. The pressure of the cerebro-spinal fluid was much increased, and the fluid contained 14 lymphocytes per c.mm. The condition gradually improved during the next 10 days, and four and a half weeks from the onset the patient was free of symptoms and physical signs.

THE CEREBRO-SPINAL FLUID.

In the majority of the cases there is no record of an examination of the cerebro-spinal fluid. In Foster Kennedy's case of aphasia and hemiplegia the cerebro-spinal fluid was under pressure and contained 14 cells per c.mm. In Souques and Lafourcade and Terris' case, in which both upper limbs were affected four days after the onset of serum-sickness, the cerebro-spinal fluid contained 2 cells per c.mm. and 0·20 per cent. of protein.

A clue to the changes in the cerebro-spinal fluid is, however, provided by the findings of de Lauvergne and Abel, who examined the cerebro-spinal fluid from two to eight days after the onset of serum-sickness in patients who had received prophylactic injections of antidiphtheritic, antitetanic or anti-pneumococcal serum. They found a slight reduction in the quantity of glucose, from 5 to 28 cells (chiefly lymphocytes, but sometimes a few polymorphs), no increase in albumin, and a definite increase in pressure. Specimens collected at the onset of the eruption showed only a decrease in glucose; those from two to four days after the onset showed the characteristic features—a decrease in glucose and hypertension, with an increase in the cell count; and those at the time the eruption was subsiding a practically normal cerebro-spinal fluid.

RELATION TO SERUM TREATMENT AND SERUM-SICKNESS.

In all the cases under review the neurological condition appeared after the injection of a serum, in many cases the first dose of serum the patient had received. In practically all the cases it was associated with the more general symptoms of serum-sickness, and appeared as a rule from two to five days after the onset of the urticarial rash. In a few cases there was no external evidence of serum-sickness but the neurological symptoms developed at the time serum-sickness usually appears. There was no definite relationship between the site of injuries or of injection and that of the paralysis which developed subsequently after the onset of serum-sickness.

PATHOGENESIS.

Various hypotheses have been propounded to explain the appearance of paralyses and other neurological signs in these cases. De Lauvergne and Abel regarded the meningeal reaction in their cases as proceeding pari passu with the urticaria, and related it to the appearance of headache, nausea, and vomiting in some cases of serum-sickness. They believed that this meningeal reaction might lead to radiculitis in some cases, and especially in those in which the upper roots of the brachial plexus on one or both sides are involved. The curious selectivity of the condition in these cases might be explained by the anatomical arrangement of the periradicular thecal sheaths. Sainton has suggested that the amyotrophic group, in which the shoulder-girdle is affected, might be the result of strangling of the nerve roots by perifascicular or epidural œdema. Mouriquand and Dechaume and Ravault believed that the paralyses in the region of the shoulder could be explained as reflex paralysis following serum-arthritis, an explanation for which they were unable to produce any satisfactory evidence. Sicard and Cantaloube suggested that the musculospiral paralyses described by them were the result of inflammatory changes in the connective tissue surrounding the nerve in the musculospiral groove; while Lhermitte and Morichau-Beauchant regarded the paralyses, especially those in the region of the shoulder, as the result of a

toxæmia, and closely allied to the paralyses sometimes seen after typhoid fever. Foster Kennedy believed that toxicity of the serum and urticarial œdema of the perineural tissues were both important factors, the latter probably accounting for the cerebral cases and for the paralyses of single long nerves. He pointed out that in the latter group the paralyses were obviously paralyses by compression and not by destruction of nervous parenchyma, and that the site of the paralysis coincided with that of the greater incidence of œdema, there being entire absence of nerve involvement elsewhere.

It is doubtful if any one pathogenesis can explain all the cases. Local and general œdema would explain the cerebral cases and the paralyses of single nerves; while radiculitis, either from local œdema or inflammation at the exit of the nerve roots from their dural sheaths, appears to be the most feasible explanation for the amyotrophic and polyneuritic cases. The appearance of the symptoms and physical signs from two to five days after the onset of serum-sickness, when both the urticaria and the meningeal reaction are most pronounced, suggests very strongly that either a local œdema or the meningeal reaction is the source of the local condition. There is a suggestion, too, that these clinical features may appear independently of external manifestations of serum-sickness.

PROGNOSIS.

Generally the prognosis for recovery appears to be good. The more acute manifestations usually disappear within one month. Where muscular paralyses are a prominent feature, they tend to recover, but in many cases very slowly, a return to normal function occurring only 12 months after the onset of the condition. In some cases, even after 18 months, while some recovery has occurred, local wasting and impaired motor power are still present.

SUMMARY AND CONCLUSIONS.

1. The neurological complications of serum treatment may be classified in four groups: (*a*) a radicular type, resembling an Erb-Duchenne paralysis of acute onset; (*b*) a neuritic type, in which single nerve trunks are affected; (*c*) a polyneuritic type, in which the clinical picture resembles that of toxic polyneuritis; and (*d*) a cerebral type, in which symptoms and physical signs probably resulting from intracranial or cerebral œdema are the prominent features.

2. The pathogenesis of the neurological complications of serum treatment is discussed.

3. As a rule the prognosis of the neurological complications of serum treatment is good.

I am indebted to Dr. J. R. Prior for notes on the condition of the patient before the onset of the paralysis.

REFERENCES.

Babonneix, L.: Gaz. d'hôp., 1924 (quoted by Carniol).
Benech et Brénas: Rev. méd. de l'Est (quoted by Carniol).
Bourrat, L.: Lyon méd., 1929, cxliii., 787.
Carniol, S.: Thèse de Paris, 1926.
Caulhois, C.: Bull. et mém. Soc. Chir., 1912, xxxviii., 826.
Dechaume, J., and Croizat, P.: Compt. rend. Soc. de biol., 1929, ci., 1145.
De Lauvergne, V., and Abel, E.: Bull. et mém. Soc. méd. hôp. de Paris, 1926, i., 488.
Durand, C.: Thèse de Paris, 1919–20.
Dyke, S. C.: THE LANCET, 1918, i., 570.
Étienne, G.: Rev. méd. de l'Est, 1928, lvi., 503.
Étienne and Benech, J.: Ibid. (quoted by Carniol).
Étienne and Gerhault, P.: Bull. et mém. Soc. méd. hôp. de Paris, 1929, liii., 799.
Filotico, R.: Il Morgagni, 1929, xxix., 718.
Goujard, E.: Thèse de Paris, 1919–20.
Katzenelbogen, S.: Rev. méd. de la Suisse Romaine, 1923, xliii., 316.
Kennedy, Foster: Amer. Jour. Med. Sci., 1929, clxxvii., 555.
Léri, A., and Escalier, A.: Bull. et mém. Soc. méd. hôp. de Paris, 1926, i., 1468.
Lhermitte, J.: Gaz. d'hôp., 1919, xcii., 1053.
" " : Paris méd., 1924, liii., 221.
Marchal, R.: Arch. méd. belges, 1921, lxxiv., 1124.
" " : Ibid., 1923, lxxvi., 406.
Mason, V. R.: Jour. Amer. Med. Assoc., 1922, lxxviii., 88.
Morichau-Beauchant, R.: Bull. et mém. Soc. méd. hôp. de Paris, 1923, xlvii., 1357.
Mouriquand, G., Dechaume, J., and Ravault, P.: Lyon méd., 1923, cxxxii., 751.
Pehn, Bertoye, and Dechaume: Lyon méd., 1929, cxliv., 762.
Pollet, L.: Gaz. d'hôp., 1924, xcvii., 561.
Rolleston, J. D.: Med. Sci., 1923–24, ix., 443.
Sainton, P.: Médicine, 1926, vii., 364.
Sainton, Descauts, and Rogers: Bull. et mém. Soc. méd. hôp. de Paris, 1924 (quoted by Carniol).
Sezary and Dessaint: Ibid., 1923, xlvii., 1046.
Sicard, J. A., and Cantaloube: Ibid., 1923, xlvii., 1046.
Souques, Lafourcade, and Terris: Ibid., 1924, xlviii., 757.
Thaon, P.: Semaine méd., 1910, xxx., 513.
Thomas, A.: Presse méd., 1925, xxxiii., 217.
Thomas, S.: Ibid., 1920 (quoted by Carniol).
Vincent, C., and Richet, fils, C.: Bull. et mém. Soc. méd. hôp. de Paris, 1911, xxxii., 670.

CLINICAL AND LABORATORY NOTES

DIPHTHERITIC HEMIPLEGIA.

BY E. C. BENN, M.B. LIVERP.,
SENIOR ASSISTANT MEDICAL OFFICER, BIRMINGHAM CITY HOSPITAL;
AND
S. ALSTEAD, M.B. LIVERP.,
ASSISTANT MEDICAL OFFICER TO THE HOSPITAL.

THE first recorded case of hemiplegia following diphtheria is contained in Gull's report on "Diphtheria in the Metropolis," which is included in the Second Report of the Medical Officer of the Privy Council, 1859. It occurred at a school in South Hackney during an epidemic in which most of the children suffered from diphtheria. After a brief description of the case, in which the whole of the right side of the body was affected, the report continues:—

> "I was led to suppose that some endocardial inflammation was set up, and that probably obstruction from local coagulation of blood in the cerebral vessels was the cause of hemiplegia. By the freest use of wine and ammonia the child rallied, but the hemiplegia remained for many months, after which there was slow improvement."

PREVIOUS RECORDS.

Since the condition has been recognised as a possible complication of diphtheria a considerable volume of papers on the subject has accumulated. In 1913 Rolleston [1] described six cases which had come under his own observation, and in the same communication gave an exhaustive survey of others. At that time he had collected only 80 cases, but in 1929 he stated [2] that "barely a hundred cases have been recorded." A detailed account of a single case was also given by Rolleston [3] in 1905, and includes notes on the pathology of the condition and associated complications. In a further article [4] this observer emphasised the rarity of complete recovery of the affected limbs after diphtheritic hemiplegia, and quoted Levi,[5] who had found only four cases in which recovery was complete. It has been pointed out by Harding [6] that the condition resembles hemiplegia from other causes, and the fact that it is the only nervous complication in diphtheria which is of vascular origin has been shown by Baginsky.[7] According to Rolleston,[2 3] the lesion may be due to embolism, thrombosis, or hæmorrhagic encephalitis, and of these embolism occurs most frequently. Embolism is usually associated

with severe involvement of the heart in which the endocardium, usually apical (Marfan [8]), may also be affected. A case in which hemiplegia, probably embolic in type, occurred in the course of diphtheria, and was accompanied by endocarditis resulting in valvular incompetence, has been described by Chamberlain and Alstead.[9] The relationship between diphtheritic hemiplegia and cardiac thrombosis is suggested by the case described by Ollive and Collet.[10] As examples of the usually very severe course of the disease in which hemiplegia develops, reference may also be made to two cases described in detail by Burrows,[11] an account of one case by Smith,[12] and an example of diphtheritic hemiplegia resulting in permanent paralysis and athetotic movements, which has been published by Ironside.[13]

ACCOUNT OF A CASE.

The following description of a patient who has come under our observation recently appears to be of interest as a case in which thrombosis was the probable cause of hemiplegia associated with aphasia.

The patient was a boy of 3½ years. There was no history of previous illness except pleurisy, but it was stated that he had been under observation for suspected tuberculosis of the lungs.

On admission to hospital he was found to be suffering from a fairly severe attack of diphtheria, both tonsils were enlarged and almost covered with membrane. The general condition was only fair; the temperature was 101·4° F., the pulse-rate was 140 per minute, and there was evidence of a moderate degree of toxæmia. Routine examination did not reveal any abnormality excepting the condition of the chest, the right side of which was flattened and generally underdeveloped, moved badly on respiration, and was dull on percussion in comparison with the left side of the chest. The breath sounds were short, vesicular in type but relatively rather harsh, and accompanied by an occasional crepitation. Over the whole of the right side of the chest the vocal resonance was increased. This condition was attributed to simple pleurisy previously mentioned, and a diagnosis of thickened pleura was confirmed on X ray examination. Except for tachycardia the heart was apparently unaffected when examined soon after admission; the apex-beat was in the fourth intercostal space and within the left nipple line, and the heart sounds were well defined and of good volume. The knee-jerks were present and equal.

Although 40,000 units of antidiphtheritic serum were injected intramuscularly immediately, the membrane extended, and fœtor, nasal discharge, and cervical adenitis became more marked. An intravenous injection of 32,000 units of serum was therefore given, and 10 c.cm. of anti-scarlatina serum were injected intramuscularly as the condition of the mouth suggested an added streptococcal infection. A transient albuminuria followed the injection of serum.

During the week following admission the membrane cleared but the general state of the patient deteriorated as shown by increasing pallor and a cyanotic tinge of the face and lips. The apex-beat of the heart remained inside the nipple line but the cardiac impulse was weak and diffuse. The heart-rate diminished considerably, and the heart sounds assumed an abnormal quality with triple and tic-tac rhythms. At this stage there were signs of "congestive" heart failure, including enlargement of the liver and vomiting. For 24 hours there was suppression of urine.

From the commencement of the second week in hospital there was a gradual improvement; the quality of the heart sounds was better, vomiting ceased, abdominal tenderness diminished, and the general condition became more satisfactory. Within a few days of this improvement, however, it was noticed that the patient was not using his right arm. On investigation it was found that there was a flaccid paralysis of the limb. In the course of the succeeding week a complete right-sided hemiplegia developed, characterised by a spastic paralysis of the right arm and leg, and paralysis of the lower part of the face on the right side. Simultaneously there was palatal paralysis and occasional periods of cyanosis suggesting diaphragmatic involvement. The condition of the heart also deteriorated considerably.

When hemiplegia was fully established, systematic examination of the central nervous system revealed increased tendon reflexes in the right arm but not in the right leg. The plantar response on the left side was flexor but on the right side extensor. The abdominal reflexes were asymmetrical, being absent or very sluggish on the right. Motor power in the right arm was considerably diminished, and to a lesser degree in the right leg. The pupils were equal and circular, reacted normally to light and accommodation, and the fundi were normal in appearance. Sphincter control was lost. No sensory disturbance was detected throughout the disease. At the time of onset of the hemiplegia the patient developed motor aphasia, but speech gradually returned though articulation remained indistinct. He had much difficulty in supporting his body-weight on the affected leg, and when walking dragged the right leg very noticeably.

As yet, it is too early to estimate the permanent defects, but at the time of writing there is evidence of pes cavus on the right side, the heart appears to have recovered completely, and the child's intelligence is unchanged though he seems to have become unduly emotional.

We are indebted to Dr. E. H. R. Harries, the medical superintendent, for permission to publish this case.

REFERENCES.

1. Rolleston, J. D.: Clin. Jour., 1913, xlii., 12.
2. ,, ,, : Acute Infectious Diseases, London, 2nd ed., p. 31.
3. ,, ,, : Rev. Neurol. and Psychiat., 1905, iii., 728.
4. ,, ,, : Ibid., 1916, xiv., 415.
5. Levi, A.: Arch. f. Kinderh., 1897, xxii., 11. (Quoted by Rolleston, ref. 4.)
6. Harding, M. E.: The Circulatory Failure of Diphtheria, London, 1920, p. 135.
7. Baginsky, A.: Diphtherie und diphtheritischer Croup, Wien, 2nd ed., 1913. (Quoted by Rolleston, ref. 1.)
8. Marfan, A. B.: Leçons Cliniques sur la Diphtérie, Paris, 1905.
9. Chamberlain, E. N., and Alstead, S.: THE LANCET, 1931, i., 970.
10. Ollive, G., and Collet, H.: Gaz. méd. de Nantes, 1912, xxx., 221. (Quoted by Rolleston, ref. 1.)
11. Burrows, C.: Brit. Jour. Child. Dis., 1911, viii., 311.
12. Smith, H. G.: THE LANCET, 1922, ii., 382.
13. Ironside, R.: Proc. Roy. Soc. Med., 1925–26, xix., 3.

A CASE OF ENTERIC FEVER

WITH SO-CALLED NEGATIVE WIDAL REACTION.

BY P. H. STIRK, M.R.C.S. ENG., D.P.H.,
MEDICAL OFFICER OF HEALTH FOR EXETER;
AND
D. B. STEABBEN, PH.D. LOND.,
ASSISTANT BACTERIOLOGIST, BACTERIOLOGICAL DEPARTMENT, LISTER INSTITUTE, LONDON.

THE recent advance in the laboratory diagnosis of enteric fevers by means of the so-called qualitative serum diagnosis has been commented upon in THE LANCET.[1] The notes of the following case are published in order to demonstrate that a persistently negative Widal reaction may be obtained by the customary technique, while the new method gives a positive result.

A schoolboy, aged 15 years, left Exeter on July 25th for a camp. Two days later he complained of headache, and on July 31st he was admitted to a hospital near the camp, where his temperature was found to be 103° F. He was brought to his home at Exeter and admitted to hospital on August 8th. His abdomen was somewhat distended and he had a scanty distribution of spots on the abdomen and back, very suggestive of enteric fever. There was considerable cough and many râles at both bases; the spleen was not enlarged. Two days later there was a further crop of spots. On August 14th, 18 days after the first symptom, the temperature began to drop; it became normal on the twenty-third day of the disease, and convalescence was uninterrupted. Clinically, a rather severe case of enteric fever.

[1] THE LANCET, 1930, i., 248.

The first sample of the patient's serum, taken on the thirteenth day of illness, was only tested with Dreyer's formolised suspensions, and was negative for T.A. and B. Two further samples of serum were then tested against formolised and alcoholic suspensions and against live saline suspensions of the six strains recommended by A. Felix.*

		Titre of agglutination.	
		On 18th day of illness.	On 44th day of illness.
B. typhosus	formolised	0	0
B. paratyphosus A	formolised	0	0
B. paratyphosus B	formolised	0	0
B. typhosus "0901"	alcoholic	100	100
B. typhosus "0901"	live saline suspension	200	100
B. typhosus "H901"	live saline suspension	100	100
B. paratyphosus "HA1"	live saline suspension	200	200
B. paratyphosus "HA6"	live saline suspension	0	0
B. aertrycke "OB"	live saline suspension	100	0
B. paratyphosus "HB$_2$"	live saline suspension	100	0

Titre 0 = a negative result in dilution 1 : 100.

All these agglutinations were of the "O" type, and indicated that the negative results with formolised suspensions were due to the absence of "H" agglutinins. The serological diagnosis was therefore: "Enteric group infection."

Blood culture was not attempted owing to the boy being very weak and thin, and the fæces and urine were negative on the twenty-fifth, forty-sixth, and forty-eighth day of illness. The serological diagnosis "enteric group infection" remained therefore the only laboratory aid available. A small outbreak of enteric fever, probably water-borne, occurred at the time, all the other cases being due to *B. typhosus*.

A FATAL CASE OF QUININE POISONING.

By Stanley G. Willimott, Ph.D. Camb. and Liverp., B.Sc.,
Government Chemist, Cyprus.

Although quinine in some form or other has been used increasingly as a specific for malaria for the last 300 years,[1] cases of poisoning by its administration, by accident or design, appear to be fortunately rare. Taylor's "Principles and Practice of Medical Jurisprudence" [2] and Glaister's "Medical Jurisprudence and Toxicology," [3] for example, contain no reference to any such case. It seems that while the fact of idiosyncrasy to quinine has long been recognised, its effects as a general protoplasmic poison have not always been appreciated, as witness the massive doses of quinine administered during the late war.

Raven [4] records a fatal case in England after the ingestion of 48 five-grain tablets—i.e., 240 grains—of quinine bisulphate.

In the German literature a number of cases of quinine poisoning are quoted by Starkenstein.[5] In a convalescent case of typhus a dose of only 2 grammes was stated to have been fatal (Husemann).[5] Starkenstein considered the average fatal dose of quinine to be from 10 to 12 g., but cases were known in which 12, 15, and 20 gramme doses proved non-fatal. On the other hand, Strzyzowski [5] described a case of suicide where death was caused by a dose of 15 g. of quinine sulphate. Amongst children's cases, Mezger and Jesser [5] have recorded the deaths of two infants of about 1 year old after swallowing 1·8 g. of sugar-coated quinine hydrochloride tablets. Cases are also on record in which two children, aged 2 and 3, died after taking doses of 1·2 g. and 2·0–3·0 g. respectively. Instances are known where doses, which in themselves were small, after being taken for a few days in succession, produced toxic effects.

Case-history.—Two sisters, aged 5 and 2½ years, were playing in their house at Amiandos, Cyprus, on March 15th, 1931, when they chanced upon a bottle of tablets consisting of sugar-coated quinine sulphate. Finding that the tablets were sugar-coated the children apparently consumed them as sweets. Investigation later showed that the younger child ingested 26 five-grain tablets, or a total of grs. 130, while the elder child ingested only five, or a total of grs. 25. Within an hour of taking the tablets both girls suffered from severe pains in the stomach, complained of nausea, and refused all food. The elder child, after administration of an emetic, made a permanent recovery in about four hours.

The younger child, however, began vomiting with purging and later had convulsions. From the vomit the mother noticed small white fragments of the ingested tablets. The child was given a dose of castor oil and put to bed and later removed to hospital. The medical officer found the patient in a state of asphyxia from which she died in half an hour, death having taken place about three and a half hours after swallowing the tablets. The whole of the skin appeared cyanotic as well as the mucous membrane, the pupils were dilated, the pulse and respiration were almost imperceptible, and the body temperature very low. Froth was proceeding from the mouth and nostrils. The stomach was washed out and artificial respiration tried for 1 hour and 40 minutes without avail.

Post-mortem examination was carried out next morning and the report described a marked lividity about the lips and ears with eyes prominent and tongue protruding. All the viscera, especially the lungs and kidneys, were found to be very congested and the blood was almost black in colour. The heart, suprarenals, and kidneys showed numerous black spots due to hæmorrhage, as also did the stomach and the large and small intestines. The bladder was devoid of urine and fæces were not found. No signs of organic disease were observed and the body was that of a healthy well-developed female child.

Toxicological analysis was then carried out on the following organs: heart, lungs, stomach and contents, liver, spleen, pancreas, kidneys, and blood; and also on the tablets and fragments remaining. Each organ was separately investigated by a modified Stas-Otto method, the material in each case being well minced before the digestion with alcohol. The final residues thus obtained were tested for the presence of quinine by the blue fluorescence in oxy-acids such as dilute sulphuric acid, the intense bitterness of its solutions, the thalleioquin reaction, the lævo-rotation of the solutions, and the solubilities in ether and alcohol. Clear positive reactions were obtained in the case of the stomach and contents, while in the liver traces only were detected. In the remaining organs of the viscera no quinine was found.

It is perhaps somewhat surprising that in view of the large amount ingested no quinine could be detected in these organs. Apart from the amount lost by vomiting, at least one-third of the quinine ingested is quickly excreted in the urine unchanged. Of the remainder it seems probable that the most part is destroyed by the tissues, a fact which explains the difficulty experienced in the detection of quinine in viscera. The tablets on analysis were found to be five-grain pills of sugar-coated quinine sulphate.

I wish to thank Dr. H. Christodoulides for the details of the autopsy, and Dr. G. C. Strathairn, Director of Health, Cyprus, for permission to publish the results of this investigation.

REFERENCES.

1. Manson-Bahr, P. H.: The Lancet, 1931, i., 843.
2. Taylor's Principles and Practice of Medical Jurisprudence, 8th edition, London, 1928.
3. Glaister's Medical Jurisprudence and Toxicology, 5th edition, Edinburgh, 1931.
4. Raven, H. M.: Brit. Med. Jour., 1927, ii., 59.
5. Starkenstein-Rost-Pohl: Toxikologie, Berlin, 1929, p. 433.

* Ibid., p. 505.

Orthopædic Treatment at Leicester.—The Leicester city council has approved a scheme for the provision of orthopædic treatment at the City General Hospital at a cost of £9840. For financial reasons, however, the execution of the plan has been postponed for six months.

MEDICAL SOCIETIES

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.

AT a meeting of this Association, held on Oct. 29th, Dr. LETITIA FAIRFIELD, the President, being in the chair, Sir BERNARD SPILSBURY read a paper on

Criminal Abortion.

The terms abortion and miscarriage referred, he said, to loss of the fœtus before the sixth month; the term premature labour was used when the loss occurred after the sixth month. The act was only criminal when proof of intention was forthcoming; for example, when a medical man passed an instrument into the uterus of a woman whom he knew or suspected to be pregnant, he clearly showed his intention to procure miscarriage. He would be held guilty unless he could show some good and sufficient reason why pregnancy should be terminated prematurely in her case. The act which procured abortion might be capable of an innocent explanation—e.g., following injection of fluid into the vagina, in the course of treatment for gonorrhœa. Only the absence of any disease which would justify such treatment would lead to suspicion of the practitioner's motives. Criminal abortion might be: (1) Self-induced—most often by general violence and drugs, but occasionally by local violence. (2) Induced by another—most often by drugs and local violence, seldom by general violence.

General violence was commonly the first attempt at self-induction. Methods used were excessive exercise, tight lacing, lifting heavy articles, very hot baths, jumping or falling from a height. Occasionally these methods were effective, notably in women who aborted easily, but they might result in death, or endanger life through injury.

Local violence could be defined as any mechanical means employed upon the uterus or adjacent structures which will either stimulate the contraction of the muscle of the uterus directly, or by damaging the ovum, or detaching it from the uterus, will indirectly bring about the same result. The means include the passage, or attempted passage of an instrument. The instrument used by a woman on herself might be a skewer, hatpin, knitting needle, hairpin, or crochet hook; abortionists used catheters, sounds, bougies, curettes, tents, or other dilators. The use of such instruments by an unskilled person required some anatomical knowledge; malposition of the uterus might foil such attempts. When instruments were used by a skilled person in many cases no injury was caused, though undue haste, or the intemperate habits common in professional abortionists sometimes caused them to make mistakes. Possible dangers were sudden stretching of the cervix, causing a tear, sudden overcoming of the resistance at the internal os leading to penetration of uterine wall or injury to placenta; malposition of uterus; abnormally placed placenta. Non-instrumental methods included injections into the vagina, which might be self-administered, or intra-uterine injections, which were nearly always administered by skilled abortionists. These included watery fluids which might contain antiseptics, or a soap solution. Other methods were: blowing air into the uterus; manipulation of the external os; packing the vagina; massage of the uterus through the abdominal wall; passage of electric current through the uterus; dilatation of the cervix and removal of the contents of the uterus with a curette.

The dangers of local violence were septic infection, hæmorrhage (which might be internal if perforation had occurred), and shock. Infection in the early stage was limited to the uterus and adnexæ; the bold surgical policy of removing the uterus completely was more likely to save life than more conservative methods. The risk of shock could not be anticipated; death from shock sometimes occurred in the most unexpected cases at the moment when an instrument was passed into the uterus. Fatal shock might follow the sudden distension of the uterus by injection of fluids, or the sudden stretching of the cervical canal.

In discussing abortion induced by drugs, Sir Bernard quoted a statement by the late Dr. F. J. Smith, that there is no drug or combination of drugs which will, when taken by the mouth, cause a healthy uterus to empty itself, unless it be given in doses sufficiently large seriously to endanger by poisoning the life of the woman. It was in women with whom miscarriage normally occurs with little provocation that abortion is procured easily with drugs.

DIAGNOSIS OF ATTEMPTED ABORTION.

It was often difficult, said Sir Bernard, for a practitioner called to a case of abortion to know whether or not the abortion had been induced, unless the circumstances excited suspicion. Sometimes a patient invented an accident such as a severe fall, or a blow upon the abdomen as explanation of a miscarriage, thus the association as cause and effect between an accident and miscarriage might be less frequent than was usually supposed. The patient rarely took the doctor into her confidence; faced only with symptoms of a secondary infection he might never suspect that he was dealing with a septic abortion, especially if called in only some time after the abortion had taken place. It was therefore a reasonable assumption that criminal abortion was more frequent than was generally suspected, and the evidence obtained in many criminal cases of the long career of the abortionist, and the large number of cases that had been treated by him before he was detected, supported that view. A useful pointer to diagnosis was the relation in time of a febrile infection traceable to an infection of the genital tract to the miscarriage. If an interval of time occurred after the miscarriage before the symptoms and signs of infection appeared, the infection was likely to have occurred as a complication of the miscarriage. If the infection occurred either before, during, or immediately after a miscarriage, there was some ground for suspecting that it had been procured by some means of local interference.

DISCUSSION.

Mrs. IVENS KNOWLES from her own experience confirmed the good results of complete removal of the uterus in septic cases.

The PRESIDENT commented on the deduction to be drawn from the risks that Sir Bernard had described—namely, that some degree of sepsis followed many cases of abortion which were never discovered because the woman survived, and that much disability and ill-health in after-life might be attributable to this cause.

Sir BERNARD agreed, and said that the greatest factors in producing sepsis were the haste and secrecy in which criminal abortion had to be performed.

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY.

AT a meeting of this society held on Nov. 12th, at 11, Chandos-street, London, with the President, Dr. W. LANGDON BROWN, in the chair, Dr. S. VERE PEARSON read a paper entitled

The Individual Psychology of Phthisis.

His experience as a sanatorium superintendent had, he said, taught him that psychological factors played an important part in the causation and treatment of phthisis. Clinical knowledge gained in this way had also led him to prefer Adler's psychology to those of other schools. Thus among other points he agreed with his "common-sense" teaching, and with his opinion that physical and psychical treatment should be undertaken concurrently. He was inclined to attribute the scant notice taken of the mental factor to the fact that the superintendent was so often appalled by the way in which the physical presence of phthisis was overlooked, even when it was glaringly apparent, that he was apt to focus his attention upon the physical condition. Nevertheless no superintendent of experience could deny that in general no recovery could be obtained, even in slight cases, unless the mental factors were also taken into account.

The psychological aspect was important alike from the point of view of diagnosis, treatment, and prognosis. Difficulty in diagnosis arose from the fact that a great number of healthy people showed evidence of old healed tuberculosis—for instance, on X ray examination. If such a subject developed an anxiety neurosis, this might lead to the production of anorexia, pain or other symptoms also associated with active tuberculosis. He mentioned cases of this kind which had come under his care at Mundesley Sanatorium. Only careful and experienced observation, and the subsequent history had made it certain that the classical signs of tuberculosis which these patients had presented on admission were in reality neurotic manifestations. Observations of this kind suggested the practical advisability of reviewing doubtful cases of phthisis from the Adlerian standpoint. He gave instances where this method of procedure had led to correct diagnosis of the causal factors, and consequently to successful treatment.

For several reasons, said Dr. Pearson, he preferred sanatorium to home treatment. Thus he agreed with Groddeck that the vis medicatrix naturæ tended to be dominant, and that therefore health might often be re-established without further aid than that associated with good environment. Since however phthisis was often a sign of discouragement, in other words a running away from the stress of life, psychotherapy combined with physical treatment often led to quicker as well as to more lasting results. Thus by this means it was often possible to allay some anxiety, or to expose some underlying lack of will to health. Complete cure involved a restoration of sufficient courage to enable the individual to return to some useful work, preferably to that to which he had been trained. Prognosis was intimately bound up with correct diagnosis and treatment. The early diagnosis of phthisis was certainly important; but perhaps of even more value than the discovery of early lung disease was the detection in an early and easily recoverable stage of some mental condition which predisposed, if it had not yet actually led, to the development of phthisis. Confidence and the will to health were necessary to the recovery and maintenance of health alike. Mental as well as physical rehabilitation was therefore an essential part of sound treatment.

DISCUSSION.

The PRESIDENT agreed with Dr. Pearson that the phthisical patient needed careful psychological treatment to enable him to meet successfully the difficulties of a long and trying illness. He had been especially interested in the cases mentioned by Dr. Pearson which had simulated phthisis. He asked his opinion as to the correct interpretation of spes phthisica; he thought himself that it was a defence reaction against fear.

Dr. F. G. CROOKSHANK referred to observations he had made, in a paper published some years ago, upon the abnormally slow breathing of depressed patients. The consequent slow interchange of air, as compared with that of the normal person, gave the tubercle bacillus a greater opportunity to settle in the lungs. The prevalence of phthisis in asylums was probably connected with this fact. He certainly thought that the discouraged patient was especially liable to develop tuberculosis. He considered it likely, however, that the "decline" of the mid-Victorian woman was probably not due to tuberculosis, but was a symptom of discouragement. Removal of repression resulted in a return to health. He suggested that the favourable results which followed a stay at Davos or Mundesley were in part due to the fact that the patient left home. Spes phthisica he regarded as a sham, the feeling of one who whistled when going through a dark wood to keep up his spirits.

Dr. E. H. GRIFFIN spoke of having a fear after being gassed in the war that he had tuberculosis. Owing to a mistake with the cover-slides he was pronounced to have the disease, and that evening he went home and had an attack of hæmoptysis. Later the mistake was discovered, and he spat no more blood. That was an illustration of the influence of the mental factor.

Dr. T. ROGERS doubted whether it was always advisable for patients to return to their old occupation, for instance, when they disliked it. Such incompatibility might have been a factor in discouragement.

Dr. A. K. KERR doubted whether spes phthisica was a protective mechanism. He said he knew of cases of phthisis in which the factor of discouragement could not be discovered.

Dr. PEARSON said he thought the prevalence of spes phthisica was exaggerated. He thought it was a defence mechanism. Increased experience had strengthened his opinion of the importance of discouragement as an ætiological factor in phthisis. He agreed that wrong occupation was certainly a factor in discouragement.

PEDAL CYCLE ACCIDENTS.—It is officially stated that over 40 per cent. of the traffic accident cases admitted to the Royal Hospital, Sheffield, are caused by pedal cyclists, 28 per cent. by motor-cycles, and 25 per cent. by motor-cars, the remainder being attributable to other vehicles.

A HOSPITAL POULTRY FARM.—The committee of the Leicester City Mental Hospital has decided to adopt poultry farming on an extensive scale. There are nearly 1000 patients in the hospital and large quantities of eggs and poultry have to be purchased; it is believed that home production will ensure substantial economies.

REVIEWS AND NOTICES OF BOOKS

Artificial Cranial Deformation.

By ERIC JOHN DINGWALL, M.A., Ph.D. London: John Bale, Sons and Danielsson, Ltd. 1931. Pp. xvi.+ 313. £3 10*s*.

Dr. Dingwall has brought together in this well-illustrated volume the materials for the consideration of one of the strangest customs ever invented by man and one of the most curious forms of ethnic mutilation. The custom of artificially deforming the skull in children so as to produce an abnormal and grotesque contour is one of great antiquity and of very wide geographical distribution. The literature of the subject is enormous; some idea of its extent can be formed from the list of works consulted, which fills nearly 50 pages. Many of these studies appeared in rare and inaccessible foreign publications; it is therefore most beneficial to the student to find their essence distilled into so convenient a compass as this book, and to find also so illuminating a discussion of them. The author is concerned only with artificial deformation; fœtal moulding does not come within his purview.

Many different methods of classifying artificially deformed skulls have been proposed. Most of these are cumbrous and complicated and involve the creation of many divisions and subdivisions. It scarcely ever happens that a given cranium will fit into any of these divisions, as one form merges into another and no clear dividing line can be established. Dr. Dingwall has wisely rejected such systems in favour of a far simpler method, and by his system, based upon the means employed, his classification is reduced to six heads. These are: (1) plastic moulding; (2) application of boards; (3) application of bandages; (4) application of pads; (5) application of stones; and (6) deformation produced by cradles. By an intensive study of the subject, the particular forms of cranial deformation produced by each of these methods is clearly recognisable. Dr. Dingwall observes (p. 15):

> "Compensation will almost invariably follow after pressure, and 'growth' will take place where pressure is least. Thus, for example, suppose we fasten boards to the frontal and occipital regions of an infant's head and secure the pieces of wood together by laces. The occipito-frontal diameter will be shortened and the head will grow upwards by way of compensation. Thus the calvarial height will be increased as well as the cervico-bregmatic diameter. The parietal regions will be splayed out and growth will thus take place vertically and laterally. A similar mode of reasoning will enable us to determine the general form resulting from each variety of apparatus, and it will become apparent that a classification based on form cannot be as satisfactory as one based upon the means employed for the production of that form."

Discussions of the origin, cultural significance, and distribution of the custom belong to the domain of the anthropologist; from the medical point of view one of the most interesting questions is the effect of this strange and grossly unnatural procedure upon the health of the victims. The striking fact emerges that, according to the available evidence, most of the infants subjected to the prolonged and cruel process of artificial cranial deformation seem to survive the ordeal and reach maturity. Nor does the custom apparently produce an unfavourable effect upon physical development. Innumerable ancient skeletons have been examined in which there is the most fantastic deformation of the skull, associated with vigorous and muscular limb-bones, nor does the observation of living cases in recent times tend to show that either the physical or the mental powers of the cranially deformed are seriously interfered with. In its racial aspect, the fact that the custom has survived from remote antiquity is alone sufficient to show that it does not necessarily produce evil effects.

Grosse Ärzte.

Eine Geschichte der Heilkunde in Lebensbildern. By Dr. HENRY E. SIGERIST. München: J. F. Lehmanns Verlag. 1932. Pp. 310. RM.10.

Dr. Sigerist, who is professor of the history of medicine in the University of Leipzig, has written the story of the healing art in the form of short biographical sketches (47 in all) beginning with Imhotep, and ending with Pettenkofer, no one being included whose lifework is not closed The English-speaking reader will naturally turn to the names of William Harvey, Thomas Sydenham, John Hunter, Edward Jenner, and Joseph Lister, to see what the author has made of them; and he will not be disappointed, for the sketches, though brief, are lively and well-balanced. Of the first-named, for instance, Sigerist writes: "Harvey is an anatomist. He writes an anatomical treatise. But under his hands anatomy takes a new form; it becomes an animated anatomy, that is to say, physiology. And physiology quite other than what there was before him." This book is dedicated "to the unknown doctor who in quiet selfless work puts into practice the teachings of the great doctors." There are 68 illustrations, 16 of them full-page portraits, and in an appendix is given a short but useful biography of many of those whose portraits are painted. The book is produced in the attractive style with which the publisher has made us familiar, and the title-page suggests a desire to be up to date.

An Introduction to Neurology.

Fifth edition. By C. JUDSON HERRICK. London: W. B. Saunders, Co., Ltd. 1931. Pp. 417. 12*s*. 6*d*.

THE latest edition of Prof. Judson Herrick's masterly Introduction needs no renewed commendation; by this time it is known to a large circle, and its qualities of accurate description and readable presentation justify the appreciation it has received. Several of the chapters have been rewritten, others recast, so that the reader is now offered an up-to-date account of the form and functions of the nervous system which could not be bettered. Prof. Herrick shows himself abreast of the advances of the day, incorporating what from the standpoint of his book is most utilitarian, and most likely to prove of abiding significance. In the literal sense the book forms merely an introduction, yet within its pages is to be found much that can be studied with benefit by advanced workers in the field. No attempt is made to make the subject too easy; no difficulties are slurred over, no conflict of opinion is ignored. The desirability of modifying traditional knowledge or of discarding interpretations no longer acceptable is emphasised throughout. In other words, the reader gains the impression that the author is dealing with dynamic as opposed to static conceptions, that neural problems are of a living, vital kind; that the nervous system in health and disease is vastly more than a fabric of nerve-cells and fibres; yet the

importance of anatomical knowledge is in no sense belittled. The ready way in which wider questions are foreshadowed and further horizons indicated by Prof. Herrick's judicious comments is stimulating.

The book is a fine production, and deserves increasing recognition.

Minor Surgery.

By LIONEL R. FIFIELD, F.R.C.S. Eng., late Surgical First Assistant and Registrar, London Hospital. Second edition revised by R. J. MCNEILL LOVE, M.S. Lond., F.R.C.S. Eng. London: H. K. Lewis and Co., Ltd. 1931. Pp. 440. 12*s.* 6*d.*

THE tragic death of Mr. Fifield has left the task of preparing a second edition of this book in other hands; but he could not have hoped for a more sympathetic touch or a wiser outlook than that of his friend and colleague Mr. McNeill Love. This book has the great merit of achieving exactly the purpose with which it was written—namely, to describe minor surgery as practised and taught at the London Hospital. The book has the further advantage of being limited strictly to minor surgery. The views set out are clearly expressed and thoroughly sound.

Mr. McNeill Love has carried out his work with the minimum disturbance of the original plan of the book, and the result is admirably suited to the needs of student and practitioner.

Biology and Mankind.

By S. A. MCDOWALL, B.D., Chaplain and Senior Science Master at Winchester College. London: Cambridge University Press. 1931. Pp. 229. 6*s.*

THE author's thesis is that "the greatest need of England and of England's politicians, is a knowledge of the biological factors upon which legislation may impinge." And he frankly confesses himself a propagandist. His book, which is meant for the lay public as well as for his pupils at Winchester, gives a readable account of evolution and a pretty full description of mendelian inheritance. The last three chapters survey the social and economic implications of the biological facts as the author sees them. The main contention is that we must eliminate the "unfit" by selective breeding and sterilisation. The book suffers from the strain of exaggeration which runs all through it; the author is for example "absolutely convinced" of a number of things about which most people feel at least a little doubtful and the interference of civilisation with natural selection is described as "by far the most momentous event in the whole secular history of the world." The facts seem more or less right, but there is a complete misstatement about antitoxin on p. 140 and some curious nonsense about alcohol on the succeeding pages.

An Outline of the Human Body.

By A. DAVID BELILIOS, M.B., B.S. Lond., D.P.H. Eng., Lecturer in Domestic Medical Science, Wimbledon Technical College. London: George Routledge and Sons, Ltd. 1931. Pp. 190. 3*s.* 6*d.*

THERE seems to be a growing desire on the part of the public for books written in simple language dealing with scientific subjects. A considerable degree of responsibility rests upon the authors of such manuals. When the reader wants to assimilate new knowledge he should not be offered a distortion of the truth. This book purports to tell the story of the human body, but contains many errors, including actual misstatements of facts as well as careless expressions. We read that involuntary muscles are concerned with the movements of the lungs in breathing, that ptyalin converts starch into malt sugar "which is ready to be absorbed by the blood," that peptones are easily absorbed by the walls of the stomach, and that the function of trypsin is to turn proteins into peptones. Fig. 15, which is an illustration of the knee-joint, is labelled "hip-joint"; and Fig. 57 refers in the legend to "O," whereas the corresponding point on the illustration appears as "N." The astonishing statement is made that the mucous membrane of the nose is composed of ciliated epithelium, the "ciliæ" constantly waving about like the fins of a fish to prevent stagnation of the air! Two appendices are supplied, one dealing with the dissection of the rabbit and frog, and the other contains a plan and a short guide to the museum of the Royal College of Surgeons of England.

Leeuwenhoek: Fourteen Unpublished Letters.

Opuscula selecta Neerlandicorum de arte medica ix. Published by the Nederlandsch Tijdschrift voor Geneeskunde. Pp. lxxv. + 145.

ANY relic of the father of microscopy is of interest. We have here an English translation of some of his letters, in the possession of the Royal Society of London, which have never before been published. There are also 15 plates of portraits and facsimiles of the letters and drawings. For the success of the whole undertaking Mr. Clifford Dobell is evidently largely responsible. Leeuwenhoek at the time (1674–1678) was interested especially in discovering particles and globules in apparently homogeneous liquids; he also describes as clearly as usual his observations on hair and his deduction that they grow from the root and not from the tip. He is sorry when his friends in London write to him in English instead of French or Latin, for neither he nor anyone else in Delft can make out the meaning. The present translation seems satisfactory, though surely no spurge has ever been called "wild parsnip" in this country (p. 89).

The Management of Abdominal Operations.

By RODNEY H. MAINGOT, F.R.C.S. Eng., Surgeon, Royal Waterloo Hospital, London. London: H. K. Lewis and Co., Ltd. 1931. Pp. 311. 7*s.* 6*d.*

Diet and Care of the Surgical Case.

By REYNOLD H. BOYD, M.B., Ch.B. N.Z., F.R.C.S. Edin. With an introduction by C. C. CHOYCE, C.M.G., F.R.C.S., Director Surgical Unit, University College Hospital. London: H. K. Lewis and Co., Ltd. Pp. 106. 5*s.*

THE details of the management of patients after operation vary considerably in the practice of individual surgeons; every surgeon is, moreover, apt to confuse detail with principle and to believe that rigid attention to his own particular ritual is a necessary adjunct to recovery. This bias, if common with surgeons, is even more noticeable in house surgeons and ward sisters who may come to believe not only that their method of after-treatment is a good one, but that it is the only good one. In this book dogmatism is not absent, but the principles and methods advocated are sound and would meet with the approval of almost all surgeons; with the exception possibly of the author's views on the time for leaving

bed after abdominal operations. Mr. Maingot has cleverly avoided extremes and has laid down details of pre- and post-operative management which should prove invaluable to house officers and to practitioners. In a future edition notes on the treacle enema might be included in the sections on enemata and on intestinal obstruction. The provision of blank pages for notes permits the insertion of details which have been found useful in individual practice. The book is well arranged and clearly written.

Mr. Boyd's little book consists of a collection of brief statements of established methods of post-operative treatment in certain conditions and of diets suitable for the treatment of certain types of patient. It would appear to embody the author's experience in various hospitals, and since it forms an excellent personal note-book of methods observed and employed, it may serve to widen the outlook of others.

Journal of Pathology and Bacteriology.

THE November number (vol. xxxiv, No. 6) contains the following papers.—The pathological occurrences in the liver in experimental venous stagnation, by C. Bolton and W. G. Barnard (London). Plasma passes out of the capillaries into spaces between their endothelium and the columns of liver cells whence it drains into the lymphatics in the portal canals or escapes through the capsule into the peritoneal cavity. The loss of plasma may be such that the capillaries are filled with an agglomerated mass of red corpuscles.—An embryonic tumour of the kidney in a fœtus, by G. W. Nicholson (London). A tumour mimicking the structure of the developing kidney with a high degree of accuracy in general outline and in detail on which the author hangs one of his interesting discourses on the nature of tumour growth.—The anti-carcinogenic action of dichlorethylsulphide (mustard gas), by I. Berenblum (Leeds). The inhibition by mustard gas of the induction of tumours in mice by tar is due to some action of the mustard gas on the tissues in the pretumorous stage.—The effect of testicular passage on the virus of herpes, by W. Smith (London). Generalisation of the virus and the production of lesions in the adrenals depends on the dose inoculated: the virus grows well in testis, hence testicular passage favours generalisation.—Pulmonary asbestosis in a dog, by Norah H. Schuster (London). A dog kept for years in an asbestos factory for ratting, developed dyspnœa and wasting. Post-mortem there was considerable fibrosis of the lungs which contained abundant spicules of asbestos but none of the characteristic "bodies."—The flocculation reaction with staphylococcal toxin, by F. M. Burnet (Melbourne). Precipitates with its antitoxin in constant relation to the neutral point for hæmolysis.—Red cell measurements: a comparison of the diffraction method and the microscopic method, by A. Pijper (Pretoria). The halo method can measure the anisocytosis as well as the mean diameter.—The concentration of hæmoglobin in normal human blood, by C. Price-Jones, D. B. Dill, and G. P. Wright (London and Boston). The normal mean percentage on the scale of the Haldane hæmoglobinometer for healthy young men in London is 105, for women 98. Men in Boston, U.S.A., averaged 112 per cent. (see p. 1140).—Vital staining of malignant cells in a peritoneal effusion, by R. A. Hickling (London). Vital staining with neutral red enables the malignant cells to be distinguished from endothelial and inflammatory cells.—Hæmochromatosis in a depancreatised cat, by J. Taylor, D. Stiven, and E. W. Reid (Dundee). A cat lived for 32 weeks in fairly good health after complete removal of the pancreas and without receiving any insulin. When it was killed, there were extensive iron deposits in the liver, spleen, and kidney, aspermia in the testes, and a considerable hypertrophy of the villi and epithelial cells of the small intestine.—Patent ductus arteriosus with patent interventricular foramen in a dog's heart, by T. Hare and A. B. Orr (London). The animal was very active and showed no symptoms till a fortnight before death.—The disappearance of lymphocytes from the blood following exposures to X rays and radium, by J. C. Mottram (London). Radiation damages the capillary endothelium and the lymphocytes stick.—Tumour resistance, by H. Burrows (London). Among a number of rats which had proved refractory to inoculation with Jensen's sarcoma, five spontaneous tumours developed: one a parasitic sarcoma of liver, the other four mammary adenomata. Unsuccessful inoculation with a mouse sarcoma rendered the animals refractory to the subsequent inoculation of a carcinoma.

NEW INVENTIONS

A NEW TRANSFUSION NEEDLE.

THIS new form of needle is suitable for use in taking blood from a donor for transfusion purposes, or for rapid bleeding of a patient without having to cut down on a vein. The needle itself can be one of the standard forms as used for blood transfusion; its modification consists of the boring of a large hole near the point on the back of the needle with a short groove leading into the margin of the hole (Fig. 1). The advantages claimed for the needle are that a continuous flow of blood up to the full capacity of the needle can be maintained. The reason for the hole being bored on the reverse side near the point is as follows. While carrying out the operation of bleeding, it often happens that the wall of the vein collapses and covers up the normal orifice of the needle (Fig. 2); in these circumstances the blood flow stops or is greatly lessened, and the natural corollary is that clotting quickly takes place. With this new needle, if the wall of the vein blocks the normal orifice, the hole on the reverse side of the needle remains patent, and the flow is continued through it. As regards actual figures, with a normal donor the average amount of blood delivered through this needle is 100–150 c.cm. per min., the greatest amount I have ever obtained being 750 c.cm. in four and a half minutes. The best method of obtaining venous engorgement for the purposes of bleeding is by placing a sphygmomanometer bag above the site and maintaining a pressure of 80 mm. in the bag.

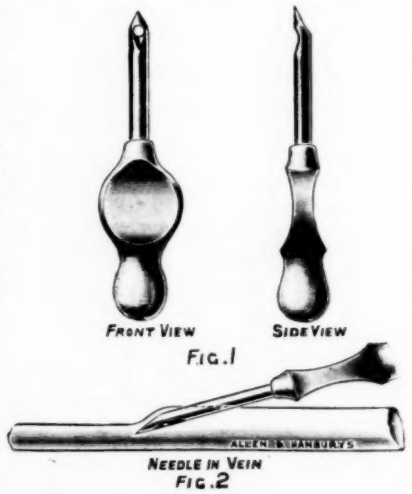


FIG. 1

NEEDLE IN VEIN
FIG. 2

Needles may be obtained from Messrs. Allen and Hanburys, Ltd., 48, Wigmore-street, London, W., or existing needles can easily be adapted to the above form.

STANFORD HOWARD,
B.M., B.Ch. Oxon., F.R.C.S. Eng.
London Hospital.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 21, 1931.

TRAINING IN PREVENTIVE MEDICINE.

THE address by Sir GEORGE NEWMAN, with which this issue opens, deals with preventive medicine in relation to the course of study now followed in the medical schools in England, and was delivered at the opening of this October session at Charing Cross Hospital. Although the lecturer's words are so recent, his theme is in relation to, and may be termed the outcome of, discussions before the General Medical Council which resulted in deliberative work nine years ago. For it was at a meeting of the Council in June, 1922, that the veteran Sir JOHN MOORE, chairman of the Public Health Committee, presented a report from that Committee on the rules for granting the D.P.H., when Sir GEORGE NEWMAN, in seconding the adoption of the report, pointed out that the Council could be severely criticised in connexion with the rules. They prevented, he said, the entrance into public health work of any but those who wished to devote their lives to the public health service, but whereas disease is the reaction of the human body to irregularities in its internal or external environment, it is necessary that doctors should be so educated, and should so educate themselves, that the principles of preventive medicine should permeate their diagnoses and therapeutics.

The presidential address this year before the British Medical Association at Eastbourne set out a parallel thesis. This was the first occasion on which a full-time medical officer of health had held the position of President, and the opportunity was taken by Dr. W. G. WILLOUGHBY to speak some weighty words on the need for coöperation between general practitioners and medical officers of health. He pointed out that, whereas in the early days of the public health medical service the activities of the M.O.H. were mainly confined to the environmental circumstances of disease as it affected considerable aggregations of population, to-day scientific progress had brought the State service into constant touch with members of the public as suffering individuals whose cases demanded treatment. It soon became clear that, in many cases, when the M.O.H. ought to have been able to pass the responsibility for treatment on to the general practitioner, the agencies for treatment were not fully available. The public health service, in other words, has so outgrown its original scope as to embrace almost the whole range of clinical work, so that institutional organisation has come to play a share in the treatment of disease which, already large, tends to grow larger.

At the same time the new provisions of the Local Government Act make it quite clear that the coöperation of practitioners in the preventive work of clinics is needed in addition to, or in substitution for, much of that domestic side of their responsibilities which formerly constituted the bulk of their practice. Therefore the general plan of medical education should include a thorough grounding in preventive medicine, so that the practitioner may on the one hand recognise the preventive aspect in his individual patients, and, on the other, be able to work helpfully with the M.O.H. when the public aspects of medicine are at issue. This is the situation, and Sir GEORGE NEWMAN, submitting that in every medical school the subject of preventive medicine should be kept before the students, sets out a simple scheme. He advocates: the delivery, as part of the regular medical curriculum, of lectures in which the relation of physiology and pathology to the internal and external environment of life should be made clear; the opening to medical students of special clinics where the principles of prevention are being put into practice; systematised instruction in the preventive aspects of medicine, surgery, and midwifery when these capital subjects of the curriculum are being taught; and lastly, an appropriate examination to be held before the student can obtain a place on the Register. The last of these recommendations is significant as showing that Sir GEORGE NEWMAN does not consider inclusion in examination papers of specific questions on preventive medicine to furnish a sufficient test of competency, but holds that the passing of a separate examination in the subject should form a definite condition of qualification.

RESEARCH ON ASTHMA.

THE Asthma Research Council, which was founded in 1927, has three investigation centres in London: a clinic at Guy's Hospital, a clinic for children at Great Ormond-street, and facilities for two workers in the department of physiology at King's College. It also makes a grant to the asthma clinic at the General Infirmary in Leeds. A report of what has been done at the London centres from June, 1930, to October, 1931, has now been published.[1] Over 300 patients have attended the clinic at Guy's Hospital, where an effort is made to combine research and treatment by careful selection of the patient in the first place, and then by making his welfare paramount once he is accepted. The authorities there are anxious to obtain examples of specific sensitisation to investigate, and practitioners will be forwarding the cause of asthma research if they will send to Guy's any patients who know of some single food or other substance which induces an attack of asthma. Patients with hay-fever are also wanted, and should attend during the winter to be studied before their season begins.

The main pre-occupation of the clinic is still with those substances (proteoses[2]) excreted in the urine, which are believed to contain the

[1] Copies can be obtained gratis from the Secretary, Asthma Research Council, King's College, Strand, W.C.2.
[2] See THE LANCET, 1930, ii., 231.

albuminous complex to which the patient is sensitive, together with a protective substance elaborated against it. The hay-fever patient excretes a proteose which can be used in the diagnosis or treatment of another hay-fever patient, but the proteose excreted by an asthmatic does not usually provoke a reaction in another asthmatic, except in cases of specific sensitisation; for instance, one case of horse asthma will react to the proteose of another case of horse asthma. Proteose also appears in increased amounts in the urine in eczema and certain forms of rheumatism, and these interesting experiments may perhaps have a wider application than was at first expected. Treatment by desensitisation—small doses of proteose—is still empirical, but has given very good results in some cases though not in others. The other main line of research in this clinic is the investigation of the sputum. Many asthmatic sputa, it is stated, contain a histamine-forming organism, but although histamine powerfully contracts the bronchial tubes, it seems doubtful whether these bacteria can actually induce asthma. Therapeutically, happy results are sometimes obtained with vaccines. Many other observations have been made in addition to these two principal objects of research, and many treatments have been tested. Individuals, as is well known, occasionally derive benefit from unusual remedies, which have no success when applied to a group.

At the Children's Clinic at Great Ormond-street over 1000 children have already been studied. In two out of every three cases an inquiry into the history showed that some relative was also affected, and the relative was twice as often found on the mother's side as on the father's. Three times as many boys as girls were affected before the age of puberty, after which the sexes were equally susceptible. These findings suggest that the asthmatic tendency is definitely transmissible, and that the changes of puberty are beneficial to the asthmatic boy and deleterious to the asthmatic girl. Where a hereditary influence could not be traced there was nearly always some severe pulmonary illness at the onset of the trouble, suggesting that inhaled particles may bring about a supersensitive state through damage of the lung. Homes were investigated, and the greatest number of sufferers was found among pampered only-children of skilled artisans and educated people. The commonest causes in the home appeared to be feather or horsehair beds, animal pets, and dust. Food played a minor part, but when it was the cause the condition was usually associated with deficient acidity and consequent inability to digest proteins, together with deficiency of the liver's power of dealing with sugar. The results of treatment have been good. In the food cases the asthma can be prevented by supplying hydrochloric acid, and great success has attended desensitisation in animal asthma and animal hay-fever. At Guy's glucose and general hygiene are the principal methods used, and open-air treatment for many months in a convalescent home is advised where the simpler methods fail. Once the habit of attacks is broken they commonly do not return.

At King's College an investigation is being made into the constituents of the blood likely to produce asthma, particularly the calcium-potassium-carbon-dioxide balance. It seems that a disturbance of this balance partly explains both locality and food asthmas, and the results when applied to patients are encouraging. The suggestion that asthma is related to an alkaline state of the body is held to be confirmed by another investigation into the effects of carbon dioxide on the bronchi. The calcium environment of the bronchi has also been shown to affect profoundly their reactions to foreign substances, and it has been found possible to desensitise them without making them contract. A method has also been elaborated for assessing the nervous factor in asthma.

CONCENTRATION OF HÆMOGLOBIN IN NORMAL HUMAN BLOOD.

IT is 30 years since HALDANE and LORRAIN SMITH showed that the oxygen-carrying power of blood varied in direct proportion to its colour and could be accurately determined colorimetrically by comparison with blood of known oxygen capacity. This was the basis of HALDANE's modification of the Gowers hæmoglobinometer in which he replaced the uncertain and unstable standard of picro-carmine gelatin by a 1 per cent. solution of blood of known oxygen capacity saturated with carbon monoxide. Properly made and sealed, these standards are permanent, are valid in any light since the standard and the unknown are the same pigment, and can always be referred to an absolute and verifiable standard by comparing them with blood of which the oxygen capacity has been determined directly by the ferricyanide method. The instrument in short is one of high precision and very convenient, and it has for long been used by all serious observers in this country. In recent times, however, a rather general suspicion has grown up that the average normal level determined by HALDANE and LORRAIN SMITH is now too low. From the examination of 24 healthy men, they obtained an average oxygen capacity of 18·5 c.cm. oxygen per 100 c.cm. of blood and marked this as 100 on the hæmoglobinometer scale; from 18 women they got a mean of 91 per cent. on the scale. In actual practice however it has turned out that most readings for normal males are 100 or more, and in the United States several sets of normal values have given means of more than 110. The difficulty evidently wanted clearing up and this Dr. PRICE-JONES at University College Hospital Medical School has recently set out to do.[1] In 100 healthy young men he found a mean value of 105 per cent. on the Haldane scale, with a range of 96 to 116; in 100 healthy young women 98 per cent., with a range from 90 to 110. The normal 100 per cent. of the instrument is evidently too low now, though whether a larger series than they examined would have given HALDANE and LORRAIN SMITH the same figure in 1900 cannot unfortunately now

[1] Jour. Path. and Bact., 1931, xxxiv., 779.

be found out; it is quite possible that the normal level has risen, possibly because more adequate hearts enable a more viscous blood to be circulated conveniently. This new figure was, however, still discrepant with the normals in America. Over there the Haldane hæmoglobinometer is almost never used; either the oxygen capacity of blood is determined directly from a vein sample or the colour is matched against some standard which is calibrated by oxygen capacity determinations. As it happens, these are done there by the van Slyke method, while in England Haldane's ferricyanide method has always been used in making standard solutions for the hæmoglobinometers. Curiously enough no serious comparison of the two methods of determining oxygen capacity has ever been made, and it seemed possible that here lay the explanation of the difference between the normal levels of hæmoglobin in the two countries. So Dr. PRICE-JONES went to Boston where in a series of 20 healthy young men he determined the oxygen capacity colorimetrically with the same hæmoglobinometer he had used in London, while Prof. D. B. DILL and Dr. G. P. WRIGHT determined it by the van Slyke and Haldane methods in the technique of which they are respectively experts. The several means came out as 112, 112, and 109 per cent. on the Haldane scale, the van Slyke method consistently giving slightly higher results than the Haldane, though the difference is not nearly enough to account for a mean of 112 in Boston against 105 in London. Dr. PRICE-JONES is inclined to attribute the relative polycythæmia in America to the habitual and persistent use of saloon motor-cars and the consequent slight chronic carbon monoxide poisoning. That polycythæmia can be and is actually produced in this way has been fully established, and it is certainly curious that American figures for normal women are not higher than those found in London. In Buenos Aires too ORIAS found a mean of 103 per cent. for soldiers, 111 for students, and 97 for women, and the general demand for "sunshine roofs" may be an empirical herd response to the avidity of hæmoglobin for carbon monoxide. Finally, we should like to express the hope that no attempt will be made in the light of these results to alter the standard at which the Haldane instrument has always been set. The important thing is to determine with it the oxygen-carrying power of the blood, and it is no matter if the normal level is 105 on the scale instead of 100. Any change would make for nothing but confusion.

ANNOTATIONS

ANÆSTHETISTS TO SURGICAL UNITS.

THE professorial system, with its "units," has been in force enough years now at several teaching hospitals in London for sound opinion to be formed of its merits or demerits in comparison with the older arrangement alongside of which it is at work. That the newer method is not a complete success in London medical schools is evident, for some hospitals in which it was adopted have after trial gone back to their former arrangements and in others the unit staffs do not receive the wholehearted sympathy of their colleagues. Nevertheless, there are certain advantages accruing both to and from the physician or surgeon whose time is wholly given up to hospital practice, and these advantages have been fully utilised, we believe, by those holding leading positions in the units. The benefits should be, and we believe are, manifest in research, in teaching, and in the additional time available for devotion to the patients' welfare. There are directions in which the unit system appears to be incongruous with the other method of employing the staffs of voluntary hospitals, and there is certainly one class of worker to whom the system is definitely unjust. We allude to visiting anæsthetists who are required to work for the surgeons of units, and their unfortunate position is described in the letter from Dr. Howard Jones which appears on p. 1156. The honorary anæsthetists at the London hospitals receive of course but slender, if any, direct remuneration in return for their services at the institutions to which they are attached. It is presumably supposed that just as the physician or the surgeon is unpaid and takes his chance of earning a decent income through the reputation and the practice which may fall to him owing to his hospital appointment, so the anæsthetist is in an exactly similar position. This is however not the truth. The position is not exactly the same for the anæsthetist as it is for the physician and the surgeon. This arises from an essential difference in the relationship between the patient and the surgeon on the one hand, and the patient and the anæsthetist on the other. Anæsthetics are inevitably a secondary not a primary need. The surgical patient requires primarily an operation, we may suppose, and for that operation an anæsthetist is generally, though not always, necessary. But it never happens that the anæsthetist is the patient's primary need. He is wanted only through the surgeon. Consequently the hospital anæsthetist depends for his livelihood mainly on the surgeons with whom he works in hospital, and it is on the chance, the probability, of earning fees through them if his work is satisfactory that he is willing and able to put in many hours of unpaid work at hospitals. When these hours are spent with the surgeon of a unit, who does no operating outside the hospital, the anæsthetist is not only doing unpaid work, but is doing it generally just at a time when he might be earning a fee in private practice. He gets no reward except that bestowed on him by the consciousness of meritorious charitable labour. This fruit of toil however is apt to lose its savour, for the anæsthetist feeds on it in abundance. His work is, as Mr. Morley Roberts observed somewhere, "an honourable but not a fertile occupation." It seems to us plain that where surgical units at teaching hospitals are concerned the anæsthetists' lot should be made, not less honourable, but, at any rate, more fertile. He is surely an essential part of a properly constructed surgical unit. The leader of that unit is paid, his assistants are paid, and so should the anæsthetist be paid. Under existing conditions it must happen that the anæsthetist's sense of duty sometimes gives way before necessity and he delegates his duties to a junior, to the resident anæsthetist, or

to a house officer. The patient of the unit does not therefore receive the best that the hospital can give in the way of anæsthetic skill. There is another excellent reason for having anæsthetists properly attached to units, the reason made plain by those advantages of the system to which we have already alluded. Opportunities for research and systematic teaching, is there no need for these things in the science and art of anæsthetics? Is there any valid reason why a small number of anæsthetists, the right men being of course elected, should not be encouraged and given the means to prosecute clinical and laboratory research in their subject, and promote adequate systematic instruction of students? As a matter of fact there was never a time when such opportunities were more desirable than they are to-day. The multiplicity of methods, the complication of apparatus, and the almost weekly appearance of some new anæsthetic agent make it hard for the practising anæsthetist to keep abreast of his subject, and harder still for him to give adequate practical up-to-date instruction to the students working under him. There should be anæsthetists freed from the necessity of private practice, at any rate in large amount, who could extend the science and thoroughly teach the practice of their subject. Attached to the units they would be an innovation, but one which is long overdue. The present infelicitous arrangement is unfair to the anæsthetist and not in the best interest of the patient.

THE C.S.M.M.G. AND LOYALTY.

AT a recent general meeting the Chartered Society of Massage and Medical Gymnastics decided to ask the Privy Council to sanction by-laws which would penalise disloyalty among its members. Before admission to the society's register a candidate already has to give his word not to undertake any case except under the direction of a registered medical practitioner, not to sell goods to patients in a professional capacity, and not to accept secret commissions on the sale of goods; but hitherto the council of the society has had no authority to act in cases where the undertaking has not been honoured. The new by-laws will make it possible to enforce a penalty for their infringement. Any registered member who commits a breach of them will render him/herself liable to have his/her name removed from the register and to return his/her badge of membership and such certificates as may have been granted. It is, we think, a striking proof of loyalty when the members of the C.S.M.M.G. bind themselves by their own act to be loyal to the medical profession. There are of course still a number of people who practise massage and various forms of light and electrical treatment without adequate training and without having passed any examination worthy of the name. These persons are free to bring themselves to the notice of doctors and of the public in ways not permissible to the chartered member. The number has been sensibly diminished by the action of the Society of Apothecaries in forming a roll of biophysical assistants, to which, by the way, chartered masseurs and masseuses who have qualified in light and electrotherapy are eligible for admission; no person is admitted to the B.P.A. register without a similar pledge. It would assist both groups of assistants to develop on lines serviceable to medicine as a whole if this action were reciprocated, and medical men ceased to employ unqualified assistants in massage and physical methods. Our own profession has been built up on the belief that qualification to practise should depend on training and examination, and it seems reasonable that the same should hold good for the practitioner's assistant. The C.S.M.M.G. is fortunate in its officers for the coming year, for Lord Moynihan has accepted the presidency, Sir William Hale-White and Sir Cooper Perry become vice-presidents, while Mr. R. C. Elmslie and Dr. J. B. Mennell are chairman and vice-chairman respectively of the council.

NEW LIGHT ON NEWTON.

THE Newtoniana of this country have been materially enriched by Colonel de Villamil's "Newton: the Man." The book[1] comprises the catalogue of Newton's library compiled from two distinct sources; the inventory of his belongings at death; and a popular introduction containing evidence of the ill-founded nature of the charge that Newton gambled in South Sea stock for "greed of gain," and throwing considerable fresh light on his character. In a foreword to the volume Prof. Einstein welcomes its appearance, and suggests that Colonel de Villamil's contention that Newton was the inventor of the calculus of variations deserves careful critical examination. One of the library catalogues has for some time been available in MSS. form in the British Museum, but it is supplemented here by Colonel de Villamil's discovery of the more complete list of the books as catalogued by Dr. Musgrave, who purchased the volumes from the Huggins estate. Book collectors will note with interest that, through the evidence of book-plates and press-marks, it is possible in many cases to state with certainty whether an alleged Newton book that comes into the market did or did not belong to Sir Isaac Newton. The library catalogue compels admiration for the genius of Sir Isaac Newton and those of his contemporaries who laid the foundations of modern science. His shelves were well stored with theological works reflecting the controversies of the time; of poetry there was surprisingly little, not even a copy of Shakespeare; of alchemy a great deal, Newton having considered transmutations of elements worth noticing as being the "most luciferous and many times lucriferous experiments in philosophy." Of books of travel there is an abundance; of medicine more than might be expected of a man who was Master of the Mint and a physicist.

To judge from Newton's library it needed the insight of genius to find physical truth in the welter of contemporary fancy. Side by side with the practical common sense of such writers as Cockburn on "Sea Diseases," with works on anatomy illustrated by excellent plates, with the writings of Robert Boyle, one meets many samples of the wilder imagination which at the time often masqueraded as science. In this perilous environment, peopled by "birds that laid 'eggs sicut montes,' and that picked up an elephant like a hawk can pick up a mouse," Newton undoubtedly owed much to mathematical method, though he was no slave to mathematics. From the evidence the inference is legitimate that he used mathematics with the genius of a mathematician, as a tool to subserve physical ends, much as the statistical method is being more and more used to-day both in investigating the causes and in determining the treatment of disease. This was the case with Newton in a superlative degree, for he could not only use existing mathematical machinery as is done to-day by many medical men who themselves

[1] Knox, Guilford-street, London, W.C.1. 3s. 6d.

may have little mathematical knowledge, but could also devise mathematical machinery suited to his needs. As the author puts it: "When Newton found he wanted a calculating tool, he invented the binomial theorem, and from a modification of this he later invented a system of 'fluxions' which is commonly called the 'Calculus.' Later, again, when he wanted to calculate the shape of bodies of least resistance he invented a further modification which is now known as the 'calculus of variations.'"

Newton was craftsman as well as natural philosopher; Colonel de Villamil crediting him with having made with his own hands the "Newton" chair, now in the Library of the Royal Society, and his outlook was modern in that he carefully dissected the eye while investigating light and vision. Finding the refracting telescope imperfect, he invented and built the reflecting instrument, grinding the lenses with his own hands, an exploit that can be paralleled, though rarely, to-day. Of his personal surroundings the "inventary" discovered by the author in Somerset House conveys many entirely new valuable details. There is, for instance, the curious and suggestive detail that the whole colour scheme of his furniture was red. By means of this document Colonel de Villamil has brought to light so much itemised evidence that it would be quite possible to reconstruct Sir Isaac's actual surroundings, were his house in existence. As it is, it will require only a small effort of the imagination to form a mental picture of Newton as he lived and worked, far more complete than could be built up in the case of many modern contemporaries, and for this physicists and men of science throughout the world will be grateful.

THE TRAFFIC IN NARCOTIC DRUGS.

AT the last meeting of the Assembly of the League of Nations in September it was claimed that the League is now in possession of an effective instrument "for securing the limitation of manufacture and the regulation of distribution of narcotic drugs." The Assembly, nevertheless, expressed the view that such limitation of manufacture was but the "first step towards the limitation of the production of the raw material." It accordingly proceeded to instruct the Opium Advisory Committee to undertake, as soon as possible, the collection of material for a further conference on the limitation of the production of opium and of the cultivation and harvesting of the coca leaf. The representatives of some of the producing countries were not slow to point out the economic difficulties in which the contemplated limitation of production would involve them, the Persian delegate remarking that the opium exports from his country amounted to 25 per cent. of its foreign trade. The report of the League of Nations Opium Commission in the Far East, dealt with in THE LANCET of Oct. 31st, fully confirms the contention that the radical method of dealing with the abuse of narcotics and the illicit traffic therein is by control of production at the source. The Assembly indeed recorded their opinion that "the enormous ravages caused by the illicit traffic revealed the fact that quantities of narcotics greatly in excess of those needed for medical and scientific requirements are being produced and circulated throughout the world." While there has been some recent reduction in the world manufacture of morphine and cocaine this appears to have been offset by an increase in the production of heroin. In 1930 more than 10 tons of pure narcotic drugs have leaked into illicit traffic. A conference is now sitting at Bangkok to deal with the traffic in opium "prepared" for smoking in the Far East, where the problem is complicated by a vast amount of smuggling. The evil has attained to such proportions that one of the American "observers" has reported to his Government that complete prohibition is the only method whereby it can be overcome.

END-RESULTS OF OPERATIONS FOR PEPTIC ULCER.

THE comparative merits of resection and gastro-enterostomy for gastric and duodenal ulcers, as judged by the test of time, are discussed [1] by Dr. Erik Brattström, of Prof. Petrén's Surgical Clinic in Lund, Sweden. His material consists of the patients operated on for chronic gastric or duodenal ulcer between Jan. 1st, 1900, and Dec. 31st, 1920. The subsequent fate of these patients was investigated some 2 to 11 years after the operation, and this first inquiry was completed in 1923. In 1930 a second investigation of the same material was carried out. The pathological changes were approximately the same in the two groups, one of which consisted of 93 patients treated by resection, and the other of 60 patients treated by gastro-enterostomy. The observation period for those living was, for the resection series, 8 to 21 years, and for the gastro-enterostomy series, 21 to 29 years. Good results could be claimed for 78 per cent. of the resections, and for 66 per cent. of the gastro-enterostomies. The incidence of cancer of the stomach developing after the operation was twice as high in the gastro-enterostomy group as in the resection group. Dr. Brattström concludes: "If then, finally, we should inquire into the question that constitutes the main object of the present investigation, namely, a comparison between the resected cases and those treated by gastro-enterostomy, we find an undoubtedly greater percentage of good results on the part of the resections." He finds, however, that what he calls the "stability" of the results after operation was a little more favourable for the gastro-enterostomies than for the resections.

STERILISATION OF YEASTS AND FUNGI.

SOME recent laboratory experiments by E. Kadisch deserve notice because his observations affect not only dermatologists but all who are trying to discover therapeutic weapons against the mycotic group of organisms. His paper, of which the second instalment has now appeared,[2] is highly technical, but the conclusions may be quoted. He finds that small pieces of cloth smeared with the agar-cultured colonies are a practical, reliable, and easily handled material for sterilisation tests. The resistance of the organisms is often variable, and sometimes greater than was expected—both facts being probably dependent on the protective character of the agar in which they grow. The resistance of the naked organism depends on its type and age. Yeasts are more resistant than mycelial fungi of the epidermophyton group, and *Aspergillus niger*, which he regards as a pure parasite, is more resistant than the pathogenic varieties of fungi. Alcohol he finds to be a valuable disinfectant, and thymol will kill *Oidium albicans* (the cause of thrush) in a concentration of only 1/2000 in glycerin broth in 48 hours. A 1 per cent. solution

[1] Acta Chir. Scand., 1931, vol. lxviii., Fasc. IV.–VI.
[2] Dermat. Woch., Sept. 12th, p. 1433.

of thymol in commercial alcohol proved a reliable antimycotic agent, and it is interesting to note that an increase in the concentration of the drug did not have any marked influence in reducing the times—minutes for the mycelial group, and hours for the yeasts—in which the results were achieved. Kadisch states that silk stockings, for instance, can be disinfected of all mycotic organisms, both fungi and yeasts, by six hours' immersion in this fluid.

GYNÆCOLOGY IN VIENNA.

THE large volume before us [1] describes the technique of operative gynæcology employed at the First University Women's Clinic, Vienna, and the results obtained there. The opening section is devoted to a description of the precautions against infection, anæsthesia (including a very detailed description of local and sacral anæsthesia), post-operative complications, general operative technique, and preparatory and after-treatment. The second section is given to anatomy, and the third and last section to descriptions of the various gynæcological operations, starting with cancer of the cervix, to which 160 pages are devoted, mostly occupied by a detailed description, with plates, of the extended vaginal operation which is chiefly used by the authors, though a very full and beautifully illustrated description of radical abdominal hysterectomy is also given. The numbers of cases dealt with are impressive. Thus between the years 1901 and 1920 were seen 1787 cases of cancer of the cervix, and from 1921 to 1925 a further 461 cases, of which 258 were operable—an operability-rate of 56 per cent., the primary mortality-rate being 6·6 per cent. In most cases the extended vaginal operation was done. From Jan. 1st, 1921, to May 31st, 1922, 161 cases were seen, and of these, 92 came to operation, 82 of which were done by the vaginal route, and 10 by the abdominal. In this group the primary mortality was 9·8 per cent., the five-year cure-rate being 26·7 per cent. of all cases seen (161). The results which are given in detail will repay careful study. Few cases seem to have been treated by radium, and the results obtained are, on the whole, poor, though of 249 inoperable cases treated by radium between 1913 and 1919, 26 (10·5 per cent.) were well in 1924. From 1921 to 1925 (five years), 921 myomas were seen in the clinic, 620 of which came to operation. In 349 vaginal hysterectomy was done with only one death, while supravaginal hysterectomy was carried out in 176 cases with six deaths, and total abdominal hysterectomy in 69 cases with six deaths; the total death-rate in the series being 1·6 per cent. Cancer of the cervical stumps the authors found to be rare, only eight cases in 1253 supravaginal hysterectomies. As the frequency of cancer of the cervix in the general population is 0·025 per cent., the conclusion is reached that subtotal hysterectomy predisposes to cancer in the stump. Since however the patients know that menstruation has finished, and therefore do not expect bleeding, they come early, and so most cases are operable. The absence of menstruation and accompanying hyperæmia tend to limit infiltration of the parametrium, so that of 13 cases in the authors' experience only two were inoperable. Of metropathia hæmorrhagica 580 cases were seen in the five years from 1921 to 1925; of these, 239 were treated by vaginal hysterectomy, of which four died, and 332 were treated with X rays—successfully in all but seven cases. In treatment of cancer of the body, operation by the vaginal route is again favoured. The results from radium have been poor; it was used in nine cases, of which seven were operable, and only one of them was completely cured. For retroversion the Baldy operation is preferred. Eighteen pages and 15 colour plates are occupied with interpositio uteri. A feature of the book is the beauty of the illustrations, all but two of which are original. The book, which is a notable addition to gynæcological literature, constitutes the last work from the pen of the late Prof. Peham, and really amounts to a record of his unique and lifelong experience.

[1] Gynäkologische Operationslehre. By Dr. Heinrich Peham, Professor of Obstetrics and Gynæcology at the I University Frauenklinik in Vienna, and Dr. J. Amreich, Privat dozent in the University, and sometime Assistant at the Frauenklinik. With 448, mostly coloured, original illustrations. Berlin: S. Karger. Pp. 766. RM.140.

SERUM IN ACUTE POLIOMYELITIS.

THE value of immune serum in the treatment of the acute stages of anterior poliomyelitis is now firmly established,[1] but it is difficult to get a ready and sufficient supply. In America some workers have adopted the practice of collecting and pooling small quantities from patients recovered from the disease. This, however, is not altogether devoid of fallacies, as Shaughnessy, Harmon, and Gordon [2] have shown, since they found that of seven persons who had been attacked by poliomyelitis from 6 to 24 months previously in only four was the serum potent to neutralise the virus. But in addition these workers confirmed the previously recognised fact that the serum of many people who have never suffered from the disease contains immune bodies in high concentration. For these reasons H. K. Faber [3] urges firstly, that all convalescent serum intended to be used therapeutically should be tested, and, secondly, that by testing the serum of transfusion donors a large and readily accessible supply of immune serum could be obtained. It was found that 77 per cent. of the donors tested were immune and use was made of this fact in the recent epidemic in California with satisfactory results. M. Neustaedter [4] has attacked the problem from a different aspect. Despite Flexner's original failure, he has attempted to immunise horses to the virus of poliomyelitis, and he succeeded in producing a serum which is capable of protecting monkeys from large intracerebral injections of potent virus. Pettit and other French workers have confirmed his findings and report the successful use of this serum clinically. In this country R. W. Fairbrother and W. T. J. Morgan have done a good deal of work on the immunisation of horses, and a limited supply of their serum is available for trial,[1] but so far they have not drawn conclusions about its clinical efficacy.[5] Meanwhile these results are of great interest, and prompt one to hope that eventually we shall have a supply of efficient serum for use whenever necessary.

[1] See THE LANCET, Oct. 31st, p. 977.
[2] Proc. Soc. Exper. Biol. and Med., 1930, xxvii., 742.
[3] Jour. Amer. Med. Assoc., 1931, xcvi., 935.
[4] Ibid., p. 933.
[5] THE LANCET, Sept. 12th, p. 584.

VITAMIN STANDARDS.

THE vitamins enjoyed an important rise of status when they became the subject of a conference called in London last June by the League of Nations Health Organisation, in connexion with the meeting of the Permanent Commission on Biological Standardisation. Here was a case of wise foresight; before the chaos

of varying standards, whether of substances or of animal units, had time to develop in different countries, international coöperation came into play to secure such unity as might already be possible. Clearly all the vitamins could not yet be dealt with, but what one might call the senior group—vitamins A, B_1 (antineuritic), C, and D—seemed ready for consideration. Those attending the conference were a small group of the biggest figures in the purely scientific field, and they came well prepared with data, abundant and to the point. Though it had looked beforehand as if some of the problems might prove to be knotty ones—the relative claims, for instance, of cod-liver oil or irradiated ergosterol to be standard substance for vitamin D, and the suitability or otherwise of carotene to be the standard for vitamin A—yet, in fact, nothing could have been settled more smoothly, and the fruits of the conference's deliberations are now embodied in a terse unanimous report.[1] For vitamin A, carotene, prepared and preserved in a special way, is provisionally adopted as a standard substance, with cod-liver oil as a provisional second string. For vitamin D, a certain solution of irradiated ergosterol is recognised. For vitamin B_1, an adsorption product from a specially prepared extract of rice polishings; and for vitamin C, lemon juice. The methods of preparation are carefully specified, and also the amount of the substances whose vitamin value is to be reckoned as the unit. Scientific institutes are designated which shall be responsible for preparation and distribution of the standards, and lines of further research, against a future meeting of the conference in about two years' time, are indicated. International coöperation has seldom found a happier expression, while at the same time affording us the opportunity to behold in the flesh such legendary figures as Harry Steenbock and Elmer V. McCollum.

MEDICAL CERTIFICATION IN IRELAND.

WE gave last week (p. 1105) extracts from a circular issued by the National Health Insurance Commission of the Irish Free State to medical certifiers, dealing with the increase in the number of certificates of incapacity issued. The circular qualifies this increase with the word "undue," without stating what reason, if any, it has for assuming laxity on the part of the certifiers. The rules as given in the circular include a provision for the issue of a special form of notification to the Commission in cases in which a certificate has been refused, and a warning note is added informing medical certifiers that if they issue a large number of certificates without indicating a number of cases in which certificates have been refused, a special investigation will be made. For those accustomed to insurance practice in this country it is difficult to visualise the situation which will be raised by the proposed regulations, which apparently have the same force as similar regulations would have here in view of the notice given in the circular that the monetary penalty for breaches of agreement has been raised. Panel practitioners would regard as drastic, if not arbitrary, the requirement to issue a special form in every case in which a certificate is considered unnecessary, for this would increase his clerical work without compensating advantage either to the insured person or to the service. From the administrative point of view it may certainly be a cunning way of discovering how much pressure is exercised by persons who are not incapable of work on the easy-going and kind-hearted practitioner. But the rule would appear to place the practitioner in a cleft stick; he must avoid giving certificates, and he must seek to get refusal forms filled up, so that he may avoid the special investigation. Though it is conceivable that such a method would reduce sickness claims, it would, one fears, result in hardship on the insured population, for it is difficult to see how a practitioner can exercise an unfettered judgment in dealing with patients under such a scheme. Practitioners are recommended to refer cases of difficulty to the district referees, but it is pertinent to ask whether there is any obligation on the part of insured persons to submit themselves to examination. The position is quite different with references from approved societies.

[1] Report of the Permanent Commission on Biological Standardisation. Annex IV. League of Nations Publications. Geneva. 1931. Obtainable from Messrs. Allen and Unwin, 38, Great Ormond-street, London, W.C.1. 1s. 6d.

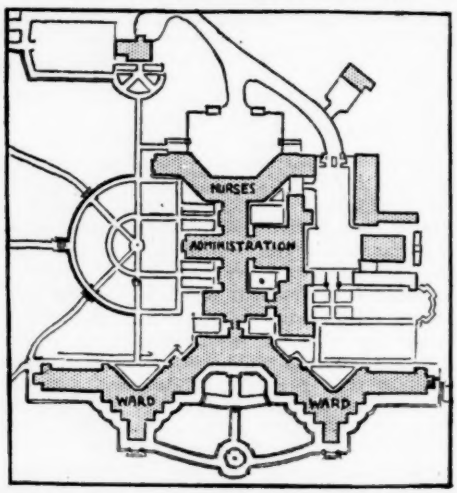
LEISHMANIASIS IN THE ARGENTINE.

AMERICAN or Brazilian leishmaniasis is a scourge to the workers in the uplands of the Argentine. It has been treated since 1916 with intravenous injections of tartar emetic, tartrate of potassium, and pentavalent antimony. But it is difficult to find suitable veins; intramuscular injections cause great pain, anæmia sometimes results, and ulcers of the mucous membrane are but little improved. Recently Prof. S. Mazza and Dr. C. A. Aranda were fortunate enough to be sent a supply of Fuadin, a trivalent antimony derivative of pyrocatechin,[1] which they have found much more useful. In a 6·3 per cent. solution it causes no pain when injected intramuscularly, no sickness or other trouble, and it has proved a cure in numerous cases, of which three are reported in detail, with pictures. The second case, supported by five pictures in series, may be briefly mentioned. The patient, aged 9, was put by some compassionate person on the train to Salta in the north of Argentina, where a policeman found him and took him to hospital on June 3rd. He could only say he had been ill four years. He had a leishmania ulcer on the left temple, another involved both left eyelids, the orbit, part of the nose, the left upper and lower lips, and the gum beneath. The ulcers were covered with granulations and blackened stinking crusts; there was much loss of tissue, including the left ala nasi. Many leishmania parasites and bacteria were found in the discharge. This boy was given seven stibosan injections, beginning that day, the first five intravenous, the sixth and seventh intramuscular, causing great pain. There was slight improvement everywhere. Fuadin was then employed; intramuscularly it caused no pain, and striking improvement began at once. The ulcer over the temporal healed forthwith, then the ulcers of the eyelids, and in great part those of the lips and nose. Treatment was suspended on account of an attack of measles, but there was no relapse as would be expected under pentavalent antimony treatment. The course of fuadin was then resumed, 0·5, 1·5, 3·5 c.cm. on successive days, then on alternate days, 3·5 c.cm. seven times—a course of ten injections. On August 30th, after seven stibosan and 20 fuadin injections, all the ulcers were soundly healed without contraction, and the gum had also healed. Pictures of the conditions before and after treatment corroborate the clinical account.

[1] Arch. für Schiffs- u. Tropen-Hygiene, October, 1931, p. 583.

THE SULLY TUBERCULOSIS HOSPITAL.

DESIGNS for the new tuberculosis hospital at Hayes Farm, Sully, are on view at the City Hall, Cardiff. There were 46 entries, and the assessors, Mr. C. Ernest Elcock and Mr. T. Alwyn Lloyd, have awarded the first prize of £400, offered by the Welsh National Memorial Association, to Messrs. W. A. Pite, Son and Fairweather, of London, who have been formally appointed architects. This firm, which was responsible for planning King's College Hospital, has submitted a design in which the various departments are cleverly arranged and the ward blocks derive every possible advantage of aspect. The site at Sully was selected with great care. It includes



some 90 acres of land adjoining the Bristol Channel, sloping gently towards the south-east, and protected on the west and north by belts of trees. The soil is porous; there is reasonable access by road; water, electricity, and gas can be obtained without difficulty; and for a hospital situated on the sea the problem of sewage disposal is simple. The ground plan, for which we are indebted to the *Western Mail*, is a model of compactness. All the ward blocks face the sea and are arranged on the sun-trap plan; every part of the building is accessible from the main entrance by a central corridor. The elevation is simple and direct, devoid of ornament and elaboration, and arising naturally out of the requirements of the plan. Architectural details will, we understand, appear next week in the *Builder*. The scheme, while not the cheapest of those submitted, is likely to be the most economical in administration. Acceptance of these plans does not preclude the Memorial Association from introducing modifications which may be thought desirable, although such modifications are subject to a clause in the conditions of the competition, which states in effect that for any costs which exceed the estimated price by ten per cent. the architect will receive no remuneration. The cost of this scheme is estimated at just under £157,000 for 250 beds, or just over £165,000 if the proposed extension to 300 beds is carried out. The cost of £550 per bed for a 300-bed institution of this nature seems remarkably low for the present time, if it is borne in mind that the institution is to be a hospital and not a sanatorium.

THE next annual congress of the Royal Institute of Public Health will be held in Belfast from May 10th to 15th, 1932. Lord Londonderry will preside.

THE biennial Huxley lecture will be given at Charing Cross Hospital Medical School on Thursday, Nov. 26th, at 4.30 P.M., by Sir Almroth Wright. His subject will be Immunity, the Old Doctrine and the New. Admission is by ticket, obtainable from the dean of the school.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lts. L. P. Spero, R. C. May, and H. H. Fisher to be Surg. Lt.-Comdrs.

The following appts. are notified: Surg.-Comdrs, C. M. R. Thatcher to *Greenwich;* G. L. Ritchie to *President* for course, and to *Furious;* A. W. Cocking to *Vivid* for duty at R.N. Barracks, Devonport; and E. MacEwan to H.M.S. *Excellent* gunnery school.

Surg. Lt. E. C. Davies to *Daffodil.*

ROYAL NAVAL MEDICAL RESERVE.

Surg. Lts. J. L. Cox and R. B. H. Wyatt to be Surg. Lt.-Comdrs.

Proby. Surg. Lt. (D) F. E. D. Hallon to be Surg. Lt. (D).

Proby. Surg. Lt. W. H. Roberts to be Surg. Lt.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. E. B. Lathbury retires on retd. pay.

Maj. (temp. Lt.-Col.) R. F. O'T. Dickinson to be Lt.-Col.

Maj. J. C. L. Hingston to be temp. Lt.-Col.

Lt. A. T. H. Marsden from the secd. list, is restd. to the estabt.

TERRITORIAL ARMY.

Maj. H. G. Peake, R.A.M.C., to be Divl. Adjt., 56th (1st Lond.) Div. T.A.

Lts. J. S. Fulton and H. W. L. Nichols to be Capts.

Lt. D. T. McDonald resigns his commn.

INDIAN MEDICAL SERVICE.

Lt. H. S. Smithwick to be Capt. (prov.).

Lts. (T.C.) S. M. Ali and B. S. Sandhu to be Capts. (T.C.).

ROYAL AIR FORCE.

V. H. Tompkins is granted a short service commission as a Flying Officer for three years on the active list, and is seconded for duty at the General Infirmary, Leeds.

The undermentioned Flight Lts. are promoted to the rank of Squadron Leaders: E. C. K. H. Foreman and W. J. G. Walker.

RESERVE OF AIR FORCE OFFICERS.

Flying Officer W. A. Beck is transferred from Class D (ii) to Class D (i).

COLONIAL MEDICAL SERVICES.

Dr. R. M. Atkinson, Dr. G. P. Campbell, Dr. L. A. Crooks, Dr. E. G. Douglas, and Dr. H. H. James have been appointed Medical Officers at Jamaica; Dr. D. de C. Boxill has been appointed Medical Officer in the Windward Islands and Dr. E. A. Seager, Chief Medical Officer in the Barbados. Mr. S. W. Harding has been appointed Dental Surgeon in the Falkland Islands. Dr. B. F. Home, alienist on the West African Medical Staff, Nigeria, becomes Assistant Medical Superintendent at the Mental Hospital, Singapore, and Dr. N. M. MacLennon, Senior Medical Officer, Palestine, becomes Senior Health Officer in Northern Rhodesia.

DEATHS IN THE SERVICES.

Colonel Robert John Shaw Simpson, C.B., C.M.G., retired, A.M.S., whose death is announced at the age of 73, was a graduate of Edinburgh, and joined the Army Medical Service in 1883. After some time spent in India he returned to England, and from 1891 to 1896 was assistant surgeon at the Royal Arsenal, Woolwich; subsequently he served in Pietermaritzburg. In the South African War he organised the Wynberg Hospital, and was staff officer to the P.M.O. at Pretoria (mentioned in despatches, Queen's medal, three clasps, King's medal, two clasps, and awarded the C.M.G.). When he returned home in 1902 he undertook the arduous task of writing the medical history of the South African War, for which he was officially thanked, and was appointed Professor of Tropical Medicine at Millbank, a position which he held from 1905 till 1909. During the late war he was A.D.M.S. in the Eastern Command at Woolwich. He received the C.B. in 1917.

Colonel Simpson married, in 1895, Jean Mary, daughter of the late George Halley, Broughty Ferry, Dundee, who survives him with two daughters.

SPECIAL ARTICLES

RUSSIA IN RECONSTRUCTION.

BY L. HADEN GUEST, *M.C.*, M.R.C.S. ENG.

I.

IN 1920 I visited Russia as Secretary of the British Labour Delegation and recorded my medical observations in a series of articles in your columns.[1] The conditions recorded at that time require brief recapitulation here as they form a useful basis for comparison with present-day conditions. The population of the Soviet Union in 1920 was estimated at 125 millions as compared with 160 millions at the present time, but figures of birth-rates and death-rates were only conjectural.

THEN AND NOW.

The outstanding differences between 1920 and 1931 have reference to epidemic diseases. In 1920 I was given the history of an outbreak of cholera in 1918 (35,619 cases), of Spanish influenza in 1918 (700,000 cases), and of typhus in 1918 and 1919 when 1,299,262 cases were registered in the eight months up to July, 1919, with a death-rate of 8 to 10 per cent. In the winter of 1919–20 there was another great outbreak of typhus. Large scale measures were taken to cleanse the Army and to improve cleanliness in towns and villages and a house-to-house propaganda campaign was carried on by volunteers. Free use was also made of posters and handbills, some of which were reproduced in THE LANCET. There were control and disinfection stations established on the railways, including the provision of a coach for the isolation of suspicious cases on all passenger trains. And there was a considerable increase in bathing accommodation provided for civilians. The result of the campaign was to reduce cases to 16,505 in the Army and 158,308 in the Civil population by April, 1920.

In addition to these epidemics there was a good deal of small-pox. Vaccination was made compulsory for the first time in Russia in April, 1919. There were about 100 cases of cholera in Moscow in May, 1920, and there were cases of other infectious illnesses in large numbers including relapsing fever. Russia in 1920 was a lice-ridden country, and an infection-ridden country. Russia in 1931 has gone a long way to conquer the lice problem, has certainly cleaned up the railways, and is free from any big epidemics.

The terrible famine occurred on the Volga after 1920 and for years the Soviet Union, with some valuable help from the League of Nations Health organisation, was fighting against the results of famine, against epidemics, and against other diseases. For example, there was much scurvy in some places in Russia in 1920, and in certain villages in the south the proportion of inhabitants infected with syphilis was stated to exceed 50 per cent.

When I visited the Commissariat of Health in August, 1931, I found that Dr. Semasko, formerly Commissar for Health, had left and that he had taken on other duties outside the medical field in connexion with the organisation of Soviet aviation because these duties were regarded as of a more urgent nature. The medical officer I interviewed was Dr. Kogan, assistant Commissar for Health, and he very courteously gave me a general survey of the health situation of the Union at that date, our conversation taking place in French and English.

In August, 1931, there was no epidemic disease prevailing over any large area of the Soviet Union and nothing in any area comparable with the epidemics in 1918–22. Cases of typhus, cholera, and relapsing fever occur but they are sporadic cases only. In 1930 there was still a danger of the transmission of cholera along the Volga route, and by other river routes, the traditional avenue of infection for Europe, but in 1931 river transport was regarded as safe.

A great onslaught is being made on the unvaccinated population. Special corps of sanitary workers called "brigades" and analogous to the "shock brigades" of industrial workers in the factories are being sent out to backward areas of Russia—as for example to the Kirghiz—and large numbers of vaccinations are being performed. Strong pressure is brought in other ways to secure vaccination. Thus on the collective farms—which now include about 60 per cent. of all farms in Russia—there are creches and schools for children where they can be left while their mothers work. But no unvaccinated child is admitted to either school or creche. A certificate of vaccination must be produced. Under these conditions the number of cases of vaccinated persons is rapidly increasing and small-pox is only sporadic. The campaign for vaccination is partly carried on by the personal work of the members of brigades and partly by posters, lectures, and demonstrations, a great deal of educational work being done.

Malaria is now largely confined to the Volga area and cases of extreme enlargement of the spleen—in some cases extending across the abdomen—which I saw in 1920 in hospitals on the Volga are now stated not to exist. In 1920 in Astrakhan I found conditions of insanitation of a very dangerous character. But conditions of this kind have now been cleared away. Very extensive oiling of pools and surfaces of marshy areas near towns has been undertaken and those exposed to infection are encouraged to take prophylactic doses of quinine. This drug was almost unobtainable in 1920 in Russia, and even now it does not exist in great abundance but sufficient is available for treatment and for prophylaxis. Practically the whole of the quinine supply of the Soviet Union is concentrated upon the river areas—chiefly the Volga—in order to limit the spread of the disease. Many other places have been cleared—for example, the famous Black Sea resort of Soché, which a few years ago was a hot-bed of malaria, is now free. Soché is the Black Sea riviera dream resort; it is reputed to be ideal for honeymooners and to have the best hotel in the Soviet Union. It is hoped to clear all low-lying parts of Russia from malaria by the end of the five year period in 1933.

THE MEDICAL FIVE YEARS PLAN.

All aspects of life in Russia have their "five years plan" and not industry alone—and the medical five years plan has already had important results. Rural medicine in Russia has always been very backward, and I was told that this was partly due to the concentration of medical teaching in the larger cities so that those who were students there became detached from country life and did not wish to leave the environment of the towns when their university studies were finished. That problem has been tackled by decentralising the universities in the

[1] THE LANCET, 1920, ii., 518, 566, 617, and 661.

sense that universities are now provided in towns all over Russia—even in only medium-sized cities. Provincial people are thus encouraged to remain in provincial areas. And when qualified the provincial doctor is given privileges as regards house accommodation, food-supply, and salary. Also every three years a provincial doctor is eligible for a period of study-leave of four to six months' duration. Great stress is laid on recruiting for the medical service from the mass of the population and 85 per cent. of the students attending courses have the whole of their education free.

Another aspect of the medical five years plan has been the insistence of the Commissariat of Health that no new building shall be erected for a factory, workshop, syndicate, or trust (forms of State organisation for dealing with the production and distribution of sugar, rice, wheat, &c.) without special provision of accommodation for a creche for children, a consulting service for women and children, a dispensary, and a hospital. I visited a factory restaurant or canteen which was provided with a special room for those on special diet and a lounge for those needing rest. No building of the character mentioned may be erected unless its plan includes this provision. And when the building is erected the medical departments are transferred to the control of the Commissariat of Health.

Great attention is being paid to industrial and occupational diseases and medical men attached to factories are engaged in constant investigation of methods of prevention of disease. The factories and workshops inspected were up to date in their hygienic arrangements, particularly as regards lighting, ventilation, and the removal of dust from the vicinity of work.

Reference has been made to the obligatory provision of creches in connexion with factories and other buildings used for industrial purposes and employing large numbers of people. This provision is made in factories—as on farms—because women work equally with men. There is so much demand for labour at the present time in Russia that unemployment is unknown and without the work of women the five years plan in industry could not be realised. But the whole tendency of life in the Soviet Union is to regard the women as economically self-supporting, so that provision of creches for children is essential. And practically all observers agree that the provision made for children is as good as it can be under the circumstances. If there is a shortage of milk the children have first call on the supply which exists, and so with other foods. Generally speaking even prejudiced observers concede that the "Bolsheviks do look after the children."

Judging from what I myself saw in mills, factories, and workshops in the U.S.S.R. there are few if any sexual divisions of work. In the large agricultural machinery works at Selmashstroy at Rostov-on-Don, where 18,000 people work in great galleries of workshops extending over 300 acres, about one-third of the workers were women. Many were young girls. And girls and men alike were handling heavy machine tools. Many of the women were doing work of a heavy character which is rigidly confined to men in this country.

A GENERAL IMPRESSION.

General impressions are admittedly fallacious but a comparison between impressions in 1920 and in 1931 may have some value on specific points. My impressions in 1920 were recorded as well as my more detailed observations of epidemic and other diseases and I could look back to these records in 1931 when I visited Russia again.

Clothing.—There is a great improvement in the amount, the quality, and the variety of clothing in Russian cities and in the country in 1931 as compared with 1920. Footwear is notably better.

Cleanliness.—There is a great improvement in cleanliness (*a*) of persons, (*b*) of clothing, (*c*) of trains, (*d*) tramcars and droskhies, (*e*) railways stations, restaurants, shops, and offices.

Appearance of Population.—In 1920 I recorded that "industrial workers are many of them anæmic, underfed, some obviously very ill." In 1931 I found that the impression was quite different; the workers were adequately fed, certainly not anæmic as a rule, and none of those working were obviously ill in any factory or industrial establishment I visited. In the country districts in 1920 the appearance of the population as regards physical condition was better than that in the town. But the contrast no longer appears. Workers on the State and collective farms were healthy looking and active looking. But both sections of the population are now adequately fed.

Condition of Children.—In 1920 I saw children in schools, homes, and colonies, and their general condition was good But the crisis in child health questions did not become acute until in the years 1923 and onwards when the large numbers of children left homeless and orphaned by war, pestilence, and famine flocked to the environs of the large cities and lived a semi-predatory life. During a short visit to Russia in 1923 I saw many of this class of children in the streets of Moscow. But now the problem of the orphans has largely been solved. In 1931 the general level of health of the child population—as evidenced by children seen under many conditions in town and country—is satisfactorily on the upgrade. Improvements are required and left-over problems from the 1923 period still exist but the changes needed are those within the grasp of the medical authorities. The food-supply of children and adults in the Soviet Union requires improvement and this improvement is being undertaken under the leadership of the Commissariat of Health by the foundation of a central Institute of Public Feeding, to be described in my next article, in which the effort is being made to control scientifically the nutrition of 160 million people.

ENLARGEMENTS OF EYE HOSPITALS. — The Worcester City and County Eye Hospital was opened by Mr. W. B. Gibbins, who gave £1000 towards the cost, approaching £7000, of a building which has been converted into a hospital. The present building of the Sussex Eye Hospital is to be sold and a new one erected near the Royal Sussex County Hospital in Eastern-road, Brighton, which is being obtained from that institution on a 999 years' lease at a peppercorn rent. The new building will cost about £30,000, of which £18,000 is in hand.

A WEST END NURSING HOME.—A nursing home to accommodate 600 patients will, it is announced, be erected in Marylebone-road at a cost of a million. The enterprise is that of Mr. Martin Harvey and the architect is Mr. G. Ernest Elcock, who designed Bethlem Hospital at Monk's Orchard. The building will contain Turkish baths, electrical treatment, and X ray departments, and a portion of the building is to be designed and arranged for the treatment of rheumatic diseases. Another portion will be given up to hotel accommodation for visitors and friends of patients, and there will be a garden on the roof. Patients, it is proposed, will pay one guinea per day, plus medical and surgical fees. The building is to be called Wimpole House. Mr. Harvey states that "a strong medical committee has been formed, with specialists to supervise the plans for their respective departments. Patients in the nursing home will be attended in the ordinary way by outside practitioners, while patients coming for treatment can avail themselves either of the institution staff or of their own medical attendants."

ROYAL COLLEGE OF PHYSICIANS OF LONDON:

AWARD OF THE BALY MEDAL.

An interesting ceremony took place at the Royal College of Physicians of London on Thursday, Nov. 12th, when, at an informal Comitia of the College, the Baly Medal was awarded to Dr. W. B. Cannon, professor of physiology at Harvard. The award is made by the College every alternate year "to the person who is deemed to have most distinguished himself in the Science of Physiology especially during the two years immediately preceding."

The President of the College, in a short address before presenting the medal, outlined Prof. Cannon's work, showing him to be a worthy recipient of the honour now to be bestowed. "We are gathered," said Lord Dawson, "in, alike, informal and friendly fashion to do honour to a distinguished worker who has made notable contributions to our knowledge. Those contributions taken together are a monument of industry and achievement. Hardly a year has passed, since Prof. Cannon took his M.A. degree in 1897, but has shown a harvest from his labours. Any effort to set forth these achievements would become a bibliographical recital, rather than a welcome. I will therefore refer to such pieces of his work as would appear to be landmarks. What I may call his first period was from 1898 to 1910 and concerned itself with the experimental study of the movements and digestive activities of the alimentary canal by the application of the Rontgen rays with opaque substances—either swallowed or injected. This work originated in an investigation of the movements of the œsophagus in birds, when an opaque emulsion was watched passing downwards to the stomach of the goose. Think where that work has led us. It has extended, even recast our knowledge of digestion, and in the region of practice has enriched the resources of every branch of medicine. Is it not fitting that the name of Cannon should be in the company of two former Baly medallists—viz., Pavlov and Starling. And I am gratified that many radiologists are present to greet one of the parents of their craft. In the second period of his work Cannon passed to a study of the effect of emotional states on gastro-intestinal function and thence to the investigation of the physiology of the adrenals—the association between adrenalin and such states as fear, anger, and hunger. These researches by Cannon and his colleagues were summated and made known in 1915 to the scientific world in the book 'Bodily Changes in Pain, Hunger, Fear, and Rage,' and to a wider public in certain U.S.A. newspapers under the heading "Professor states angrier you are, sweeter you are," referring to the fact that blood-sugar increases when adrenalin is set free. And then came the war, and here Prof. Cannon gave expression to the feelings of the medical profession in his country, which, quicker to see, did so much to make their country understand and ultimately aid the cause of the Allies. He worked first in a C.C.S. on the British Front and later with our friend General Finney of the U.S.A. Army at Dijon. Since the war Prof. Cannon has been engaged in research into the functions of the sympathetic nervous system, including the relative parts played by the sympathetic nerves and the internal secretions. A survey of this work—so close to problems in the practice of medicine—was given last year in a form most appropriate 'The Linacre Lecture.' When therefore this College decided with concordant voice to confer on Prof. Cannon the Baly Medal it felt itself to be giving honour to whom honour is due and tribute to whom tribute.

"This College, at the time of its spiritual birth England was the seat of changes even more profound than those which engage us now and as we emerged then into the light of a greater day so we shall emerge now. The greatness of this College is in large measure due to the circumstances of that birth. (What is in the bone is sure to come out in the flesh.) Its spiritual founders, Linacre, and through him, Colet—Sir Thomas More and the great Erasmus were leaders of the new learning in England, and implanted in us the strength and spirit of that learning. Nor would I like Prof. Cannon to associate our Founder King Henry VIII. with that expansive and uncomely figure shown in the portrait we possess. When the King founded this College he still, in a measure, preserved the tall, athletic handsome figure, the forceful and persuasive charm and the mind of the scholar, qualities which belonged to him at the time of his accession. Though he married often he was only in love once, and his policy laid the foundations of that freedom of conscience of which the English-speaking world is to-day the proud exemplar.

"To present to you, Prof. Cannon, therefore this symbol of our admiration and esteem within the walls of the College gives us an added pleasure; and that you should have wished it thus arouses a warm response in our hearts. We give you this Medal in the setting of our Library with its treasures dating back to the earliest days of printing—with portraits of the great men of the past around us and, as it were speaking to us, and with the immortal Harvey looking down upon us. I feel myself putting you in Apostolic succession with them in handing you this Medal which carries with it the gratitude and affection of your London confrères, and is an emblem of the understanding and friendship which unite the medical profession, in your country and ours."

Prof. Cannon, in reply, alluded amusingly to the fact that over and over again researches which had been carried on in one direction had proved by accident fruitful in another, and this had occurred to him; and he pointed out that the director of a scientific institution should always remember that the stimulus to work and the active coöperation received from students and collaborators must be taken into account when an individual is selected for personal reward.

A large and representative company of the Fellows were present during the ceremony.

ROYAL COLLEGE OF SURGEONS OF ENGLAND:

THE BUCKSTON BROWNE DINNER.

The Buckston Browne Dinner of Fellows and Members of the College was held in the Library of the College on Thursday, Nov. 12th, Lord Moynihan presided with the virtual host, Mr. Buckston Browne, in the vice-chair. Among those present were a full body of the Council of the College, Mr. S. Forrest Cowell (secretary), and Mr. Kennedy Cassels (asst. secretary), and the following Fellows and Members:—

Fellows.—Mr. Ivor Back, Sir Louis Barnett (New Zealand), Mr. Comyns Berkeley, Mr. R. H. Boggon, Mr. G. Buckston Browne, Mr. Hugh Cairns, Mr. H. S. Clogg, Mr. J. Llewellyn Davies (Nottingham), Mr. R. Davies-Colley, Dr. John Fawcett, Mr. W. B. Gabriel, Mr. T. A. Hindmarsh

(Newcastle), Mr. John Hunter, Mr. Frank Jeans (Liverpool), Sir Arthur Keith, Sir Arnold Lawson, Mr. B. C. Maybury, Mr. M. S. Mayou, Mr. P. H. Mitchiner, Mr. B. G. Scholefield, Sir Squire Sprigge, Mr. J. W. Tudor Thomas (Cardiff), Sir StClair Thomson, Mr. Vincent Townrow (Sheffield), Dr. C. B. Voisey, Mr. Cecil P. G. Wakeley, Mr. N. E. Waterfield (Great Bookham), Prof. William Wright.

Members.—Mr. R. G. Addenbrooke (Kidderminster), Dr. W. D. Arnison (Newcastle), Mr. J. H. Badcock, Mr. L. A. Baiss (Swanage), Mr. Douglas Bedford (Derby), Dr. Ernest Bonney, Dr. G. A. Buckmaster (Bristol), Dr. Harry Campbell, Dr. Maurice Cassidy, Mr. Herbert Charles, Dr. A. J. Clarke, Dr. A. H. Douthwaite, Mr. H. L. Eason, Dr. R. Kelson Ford, Dr. Francis Gayner (Redhill), Mr. Edward Gofton (North Shields), Dr. R. Hale-White, Dr. Bernard Hart, Dr. H. L. Hatch (Pinner), Dr. John Hay (Liverpool), Mr. W. E. Hills, Mr. A. Grosvenor Hinks (Southend), Dr. Remington Hobbs, Dr. F. K. Holman, Dr. N. G. Horner, Mr. William Lees (Chester), Dr. P. C. Litchfield (Purley), Colonel B. W. Longhurst (Bath), Dr. J. J. S. Lucas (Bristol), Dr. C. G. Mack, Dr. S. P. Meadows, Dr. Z. Mennell, Dr. C. W. Morris, Dr. W. J. O'Donovan, Mr. H. I. Pinches, Dr. G. A. Robinson (Nottingham), Dr. J. A. Ryle, Mr. H. Kenneth V. Soltau (Woodbridge), Dr. J. R. W. Stephens (Manchester), Dr. George Stillwell (Beckenham), Dr. Russell Thomas (Warlingham), Dr. G. deBec Turtle, Dr. Rawdon A. Veale (Leeds), Dr. W. L. Wainwright (Henley), Mr. Hugh Wetherbee, Dr. St. John Whitehouse (Solihull), Mr. R. H. Wilkin (Newmarket), Mr. Eric Young (Newcastle-under-Lyme).

The guests included Sir Robert Hadfield, Sir Gerald Ryan, Prof. P. G. H. Boswell, Prof. F. T. G. Hobday, and Mr. J. L. Douthwaite.

After the loyal toasts Lord Moynihan said that there would be no speeches and that he would simply name to the company the guests making special reference to Sir Louis Barnett, one of their Fellows, the President of the College of Surgeons of Australasia. He asked them to drink to the health of Mr. Buckston Browne, whose generosity to the College was so nobly expressed in his open-handed assistance to the new Institute of Surgical Research now being founded at Down House, the old home of Charles Darwin.

Mr. Buckston Browne said that he was replying at the special request of the President and Sir Arthur Keith, in spite of the rule against speaking at this function. He continued: "I am surrounded by pioneers in every branch of modern surgery. But lately I have looked back upon my 60 years of more or less special surgery and I am deeply interested to find that this splendid old College is concerned in all the wonderful changes and improvements that I have witnessed and participated in. All our modern progress is based upon Listerism and anæsthesia. The immortal Lister, up to this moment the world's greatest benefactor, was a Fellow of this College. After an interval of 21 years I succeeded him as a house surgeon in University College Hospital, during my house surgeoncy he sent us his surgical dressings, the first to reach London. Wonderful were the results. The first to make the administration of anæsthetics a speciality—a science and an art—was Joseph Clover, also a Fellow of this College, and incidentally the inventor of the rubber evacuating bottle, on which the modern operation of litholapaxy is entirely based. Sir Henry Morris, a president of this College, was the first surgeon to remove a stone from the kidney, diagnosed by my old fellow student Dr. Coupland. Sir William MacCormac, another president of this College, was the first to operate successfully on a bladder ruptured into the peritoneal cavity. Before this, every case, however carefully sewn up, invariably died. His work was based upon experiments made upon animals, dogs, and rabbits in Russia and in France, such researches being made wellnigh impossible here, owing to the exertions of the antivivisectors. But 1880 was the *annus mirabilis* of my surgical life. In that year the ancient, but entirely obsolete, suprapubic cystotomy was revived. This was entirely the result of work done by an assistant in the Hunterian Museum of our glorious old College—Dr. John George Garson. This revived operation, now made safe, led the way to all modern vesical surgery and inspired Arthur Fergusson McGill, of Leeds, to attack the enlarged prostate from above and to establish the modern operation of prostatectomy. McGill was a Fellow of this College. And now our old College is embarking on an entirely new enterprise, it has almost completed the building of its Surgical Biological Research Farm in Kent. Who knows what the future may have in store for us? We want all the pecuniary assistance we can obtain. All here to-night must help directly or indirectly through their friends and patients. I am no believer in finality in surgery, I have lived too long and seen too much to have any such belief. I believe the world is still full of untold surgical wonders. Let us to-night, all of us, earnestly and most devoutly, wish prosperity to the great new enterprise of the College."

Sir Louis Barnett testified to the value of the movement for holding the preliminary examination for the Fellowship at centres in the dominions and mentioned the pleasure they had felt in welcoming Prof. Buckmaster and Mr. Fagge as examiners in Australasia.

Thereafter the dinner dissolved into an informal conversazione when the many literary and artistic treasures of the College were on display.

MEDICINE AND THE LAW.

Alleged Damage by Suicide.

A CURIOUS action, reported in the *Solicitors' Journal*, has lately been brought in the sheriff court of Dumbartonshire. A man took rooms in a house and, while the landlord was out, committed suicide. The landlord claimed damages from the dead man's estate on two grounds. First he claimed for injury due to the shock of his suddenly coming upon the dead body hanging in the hall. It is clear that, at any rate in the English courts, fright or nervous shock can be the basis of a legal claim without actual physical impact—shock, for instance, due to false news suddenly given. Recently, indeed, an English county court has even applied the principle to fright (without impact) suffered by cattle. A man galloped his horse at a very fast pace past a cow grazing in a field. The cow was startled; it kicked and struggled in trying to rise; there was veterinary evidence that it consequently died of internal hæmorrhage, and the owner of the cow recovered damages from the rider of the horse. In the Dumbartonshire case the court was not satisfied that there was evidence of injury from shock; thus this part of the claim failed. The second ground of the claim was an alleged breach of contract. The claimant contended that landlords let rooms to tenants to live in, not to commit the unlawful act of suicide in. Future lodgers, it may be supposed, would hesitate to take rooms with a history of suicide. This part of the claim was rejected also. If, said the judge, the deceased had died naturally, or had been killed by somebody else, the estate could not have been held liable in damages; how could it make any difference that the man killed himself? A legal claim against his estate could only arise out of injury following in the natural course from something wrongfully done by him to some one by some act before his death. There had been no such act.

We do not encourage in Great Britain the oriental convention of committing suicide upon a man's

doorstep in order to express moral protest or difference of opinion. Most people will sympathise with the Dumbartonshire landlord. Somebody lately obtained unauthorised access to an empty bungalow and took a woman and child there; all three were found dead (apparently by suicide and murder) in the morning. The owner of the bungalow must feel he ought to have some remedy. Suicide is seldom a tidy business. A wretched man, who had vainly attempted to cut his throat, was once brought before Hawkins, J. "I do not sentence you," said Hawkins, "for trying to take your life; it was of no value to anybody. But take three months for making a mess in the passage."

Workmen's Compensation: Incidence of Miners' Nystagmus.

The House of Lords lately considered the ending of miners' nystagmus—whether a certificate of recovery meant complete recovery, whether the recovered miner was as good a man as before. Now the Court of Appeal has had to consider the beginning of the disease. Parliament has said that a workman is to have compensation for an accident occurring in the course of his employment, and, further, that miners' nystagmus shall count as an accident. But, whereas an accident happens on an easily ascertained date, it is difficult to date the happening of an industrial disease. Parliament overcame the difficulty by what Lord Justice Scrutton has called an artificial, conventional, or fictitious means. The certifying surgeon certifies that the workman is suffering from, and disabled by, the disease. If the surgeon can fix the date when the disease has begun the date is the date so fixed; if he cannot do so, the date is the date of the certificate. At the latter date the workman may not be employed at all, or may be in some employment which has nothing to do with the industrial disease. Parliament says that the employer liable to compensate the workman for miners' nystagmus is the last employer in the particular kind of employment which caused the disability. In the recent case two miners had done piecework for a certain colliery for many years. One was laid up with influenza from mid-January, 1929; the other stood off work from February, 1929, because a fall of earth blocked that part of the mine where he worked. In the following March both went to a certifying surgeon and were certified as suffering from miners' nystagmus on March 11th and 12th respectively. They successfully claimed compensation from the colliery company, which in turn claimed indemnity from an insurance company. The insurance company answered, first, that the "personal injury" (due either to accident or disease) for which the workmen could claim compensation had not occurred between March 8th and 19th, the period covered by the insurance policy; secondly, that these two workmen were not engaged in the service of the employers as miners between the 8th and 19th.

Lord Justice Scrutton, delivering judgment against the appellant insurance company, explained that the basis of the employer's (and consequently the insurer's) liability was the statutory fiction by which a workman suffering from an industrial disease was treated as employed, at the time of the certified disablement, by the last relevant employer. The insurance company could, of course, alter in the future the terms of its insurance policies; but, if it excluded particular claims to which the employers were by statute exposed, the employers (who want full protection) would be unlikely to close with the offer of limited insurance.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

INCIDENCE OF SICKNESS.

THE Department of Health for Scotland has in preparation a document on the incidence of sickness among insured persons. The results of the scheme sketched in the report for last year are being more elaborately studied, and we may look forward to tabulations that will be of genuine value for an estimate of disease-incidence generally as well as for the guidance and criticism of insurance practitioners.

DAMAGES FOR FOOD POISONING.

In a case of food poisoning Sheriff Marcus Dods has given judgment in Glasgow. He found it proved that on April 25th the pursuer purchased from the defender a tin of salmon, and on the following evening ate half a slice of bread with part of the contents spread on it. About half an hour later she became violently ill, and on April 27th had to be taken to the Royal Infirmary, Glasgow, where she was detained for two days, and had to remain in bed for over ten days after discharge. The sheriff found that her illness was "ptomaine poisoning" or some other form of food poisoning caused by eating part of the contents of the tin of salmon. He assessed damages at £25, and found the defender liable in expenses. This raises an interesting question of liability.

CHILD ADOPTION.

At the annual meeting of the Scottish branch of the National Children Adoption Association there was some discussion of the dangers of baby farming and premium adoption. The Association was founded in 1923, owing to the prevalence in Scotland of premium adoption, a system under which babies are advertised for adoption and handed over with a money bounty. No medical examination is demanded, the agreement is often very casual, and there is no guarantee of good faith on either side. The chairman said that the society saw that when adoption is necessary it was carried out, not for money, but for real love of the child. In the last few years 200 adoptions had been made, and the officials kept in touch with the cases. Dr. John Guy, medical officer of health, pointed out, for the reassurance of those who wanted to adopt a child, that the health of any child to be adopted was examined carefully beforehand.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

CALMETTE AND OTHERS ON B C G.

THE Second International Congress on Comparative Pathology, held in Paris last month, and presided over by Prof. Achard, covered a wide variety of subjects, among which was vaccination against tuberculosis. The first speaker, Prof. Calmette, dealt in considerable detail with the findings of other workers who claim to have restored some at least of its virulence by cultivating B C G under certain special conditions. He came to the conclusion that all these claims depend on mistakes or misconceptions, and that up to the present it has not been possible by any laboratory device to transform B C G into a virulent strain. He was not, however, prepared to assert that some day a cultural technique might not be evolved by means of which its former virulence

could be restored to B C G. He did not, however, see how, even if this possibility were realised, the case for vaccinating with B C G in its present state would be invalidated; and he suggested that if the principle of this argument were to be accepted as sound, hitherto generally practised methods of vaccination with a live virus, beginning with Jennerian vaccination itself, would have to be abandoned. He concluded with a comparison of the effects of preventive inoculations with living and dead cultures, and he emphasised the brevity and uncertainty of the immunity conferred by the latter. The next speaker, Prof. Gerlach, of Vienna, held that B C G must be considered as perfectly harmless to calves which undoubtedly acquire a certain degree of immunity from it. But another speaker, Prof. Blieck, of Utrecht, gave an account of numerous attempts to immunise pigs with B C G against tuberculosis. Although subsequent infection with virulent tubercle bacilli yielded more benign lesions than in the controls, Prof. Blieck had come to the conclusion that his experiments offered no great hope of protecting Dutch pigs from tuberculosis by means of B C G vaccination. Prof. Néri and Prof. Cramarossa, of Rome, had been unable to immunise rabbits with B C G to a subsequent infection with tuberculosis.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

"ECONOMIES."

THERE is no more regrettable sign of the general economic depression in Hungary than the fact that the Government—purely on financial grounds—is refraining from filling seven vacant university chairs. These are: at Pécs, the chair of general pathology and forensic medicine; at Debretzin, the chairs of pharmacology, pathology, and forensic medicine; and at Szeged, the chairs of pathology and forensic medicine. All of them are temporarily filled by professors of kindred branches, and the medical journals point out the folly of this thrift. The State saves only half of the salaries, because it has to pay a half share to the locum tenents. In the maintenance of medical institutions the salaries of the professors are the smallest item, the main expenditure being on equipment, laboratories, and the like. An ordinary professor gets as an initial salary only 528 pengö (about £20) a month, so the saving is really very little. Another line in which the State is trying to economise is by closing some hospitals entirely and by reducing the number of hospital beds. At present the city of Budapest has accommodation for 7500 hospital patients. The Economy Committee for the capital wants to close down 250 beds and dismiss the doctors who thus become superfluous. Against this draconian order not only the medical but also the lay press has vigorously protested, arguing that in the present circumstances, when there are hundreds of thousands of badly nourished, distressed people, and thousands of really ill people who are in need of hospital treatment and cannot get it because of the shortage of beds, the programme of reduction is contrary to humane feeling, as well as public health.

At the opening of the present university session 397 first-year medical students applied for registration. The Dean of the Faculty admitted only 200 and rejected the rest, although many had excellent credentials. He maintains that in the present distressed state of the medical profession it is his duty to limit the number of new students.

THE ZONDEK-ASCHHEIM TEST.

The hormone pregnancy test, as originally introduced, has two drawbacks—namely, the high immediate mortality among the mice and the long time required for the reaction to appear (about 100 hours). The first difficulty can be got over by shaking the urine with ether in such a way that toxic substances soluble in ether are removed, while the pituitary hormone is unaffected. The ether also removes some substance which restrains the reaction, and it is the experience of the Budapest Obstetrical and Gynæcological Clinic that blood-dots and yellow spots appear in greater number. When they added glucose this so much enhanced the biological reaction that the changes took place within 72 hours. At the Budapest Gynæcological Clinic the test is performed as follows: 30 c.cm. of freshly filtrated morning urine is shaken out in a separating funnel with 90–120 c.cm. of ether; the urine is then left to stand for an hour, and to it 0·9 g. of glucose is added. During the next two days the five young mice are given six subcutaneous injections of 0·5 c.cm., and 72 hours after the first injections they are killed and examined. The ovarian changes characteristic of the gravidity test—i.e., the blood-dots and corpora lutea—are so obvious that histological examination is superfluous. The reaction may be seen with the naked eye in a glycerin preparation or viewed with a microscope.

LAMBLIASIS IN HUNGARY.

Formerly it was thought that lambliasis does not occur in this zone, but during the war several cases were exactly diagnosed and observed. Owing to accurate laboratory tests lambliasis cases have been recognised of late in increasing number. Thus Dr. Purjesz, physician in chief in Gyula, has diagnosed four cases in quick succession. In all of them the predominating symptom was pain in the region of the liver, and in three there was also jaundice. In one of the cases the pain was so severe that the patient was operated on for gall-stones, and it was only when her complaints did not cease after operation that she came under Dr. Purjesz's observation. Chills, he says, are just as frequent as in cholecystitis; also symptoms of anæmia may develop in long-standing cases. Eosinophilia is not a cardinal sign of lambliasis, nor did he observe dysenteric forms. He did not succeed in demonstrating the encysted form in the fæces, but he found the vigorously moving pear-shaped lamblia in the duodenal secretion. It is important that fresh, uncooled duodenal secretion should be used in searching for the organism. In treatment Purjesz is a strong advocate of the salvarsan preparations. After administration of as little as 0·45 g. the patient's complaints may abate and the lambliæ disappear, though there may be a relapse after apparent cure. Some clinicians prefer to administer salvarsan by mouth; others like to give spirocid or stovarsol. The vermifuges used of old and the internal disinfectants are of no avail. Purjesz says that in future he will experiment with preparations given by mouth, because in this way the treatment may be long continued without inconvenience.

EUGENICS SOCIETY.—A meeting of this society will be held at the rooms of the Linnean Society, Burlington House, London, W., at 5.30 P.M., on Wednesday, Nov. 25th, when Prof. C. G. Seligman, F.R.S., will speak on Race and Temperament.

PUBLIC HEALTH SERVICES

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are 1930 statistics of Bristol, Bradford, and St. Helens :—

Name of district and estimated mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Infant and neonatal mortality.	Young child (1–5 yr.) mortality.	Maternal mortality in childbirth.
Bristol .. .. (391,035)*	15·7	11·4	1·15	1·52	1·2	2·4	58/32	26	3·6
Bradford .. (293,254)†	14·9	13·4	0·89	1·61	1·6	2·9	75/37	30	5·3
St. Helens .. (109,200)‡	21·5	11·4	0·91	0·93	2·3	1·7	80/40	31	5·1

* R.-G. estimate for 1929, adjusted for city extension.
† R.-G. estimate for 1930. ‡ R.-G. estimate for 1929.

The preliminary census figures are: Bristol, 396,918 Bradford, 298,041; St. Helens, 106,793.

Registered stillbirths per 100 live births: Bristol, 3·8; Bradford, 5·3; St. Helens, 4·6.

Bristol.

Dr. R. H. Parry shows that the city has a big task in front of it in order to secure the coördination of the various medical services. There are ten voluntary hospitals to meet the needs of the city with regard to medical, surgical, maternity, and orthopædic work. The council now provides two hospitals for these purposes. Nevertheless, there is a distinct shortage of institutional beds. The hospitals have waiting lists, and cases for early diagnosis frequently become urgent before admission. The Bristol hospitals' council which represents all the institutions is giving serious consideration to the coördination of the work of the hospitals in the area, and a scheme has been prepared which will give immense relief to overcrowded institutions. Dr. Parry urges that the scarcity of beds interferes with the early diagnosis and treatment of cancer. Observation beds are needed for the diagnosis of tubercle. Southmead Hospital, transferred from the poor-law, used to admit non-notifiable infectious cases. An attempt to treat these at the isolation hospital, using the empty small-pox hospital as an annex, failed owing to the lack of beds. The temporary blocks at the isolation hospital are worn out and cannot be used much longer. Southmead Hospital has about 200 patients of the chronic sick type who do not require hospital treatment.

An epidemic of measles, which extended well into 1931, caused 113 deaths, all under 15 years and mostly under 3 years. The last epidemic, two years ago, caused 99 deaths. Cases from unsuitable homes were admitted to the isolation hospital. The medical superintendent, Dr. B. A. I. Peters, states that the use of convalescent serum in preventing the disease in contacts was useful. He would prefer to have measles treated in smaller wards; 167 cases were treated in a 26-bed ward, of whom 23 died, a percentage (14) similar to the last epidemic, when the cases were also treated in large wards. Another 150 cases were treated in an observation ward containing four cubicles with four beds in each, and of these only six died. Dr. Peters suggests that in the large wards there may be exposure to a greater variety of secondary organisms, and secondly, that as measles children are always miserable and crying when awake, there should be more chance of sleep in the smaller wards. Since 1920 the notifications of pulmonary tuberculosis have declined by 40 per cent. but there has been no fall in the deaths. The proportion of non-notified cases is still high, and Dr. Peters says that patients are being admitted to Ham Green Sanatorium at an increasingly late stage in the disease. There are two tuberculosis dispensaries within a mile and a half of each other, both converted houses. A new central dispensary is needed. Only 50 samples of milk were examined for tubercle, and six were found to be infected.

Diphtheria was prevalent, especially during the first quarter; 1484 cases were notified, 1374 being admitted to hospital. The disease was of a very severe type, the deaths numbering 41, a fatality-rate of 2·8 per cent. Of the 41 fatal cases, 29 had not received serum treatment before admission to hospital. Immunisation was carried on at the schools, at one infant welfare clinic, and in the city hospitals. Altogether, 6524 children have received a full course, about half of the parents asked giving consent. Dr. I. G. Davies has noted five cases of fairly severe reaction. The children who contracted diphtheria during immunisation were as follows :—

After first injection	17
4 virulent, 11 mild, 2 doubtful.	
After second injection	13
4 virulent, of which one ended fatally four days after second inoculation.	
After third injection	34
9 virulent, with one death 85 days after third inoculation.	
After three injections and being Schick-tested	10
5 of these were Schick-negative and 5 Schick-positive. There were no deaths in this group.	

Dr. Davies comments that it is disconcerting to find cases of clinical diphtheria occurring in Schick-negative children and at such periods after the course. The periods varied from 185 to 204 days.

The venereal diseases clinic is held at the Bristol Royal Infirmary, but Dr. Parry points out that the liaison between the clinic and the municipal antenatal clinics is not sufficiently close, and that there is definite need for a system of following-up contacts, especially in regard to women and children. Most of the chronic venereal cases find their way to Southmead Hospital, and they also are not properly linked up with the clinic.

Bradford.

Dr. J. J. Buchan says that the accommodation in all kinds of institutions available for Bradford is more than 3500 beds, or about one bed to 80 of the population. During 1930 the three voluntary hospitals admitted 9590 cases, whilst the municipal hospitals admitted 9497. At the end of the year the public assistance institutions housed 1261 persons, and there were 180 patients in institutions for the mentally defective. During the year, 7·2 per cent. of the deaths occurred in voluntary hospitals, 24·8 per cent. in municipal hospitals, 3 per cent. in public assistance institutions, and 1·8 per cent. in lunatic asylums. The percentage of the total deaths occurring in public institutions was 37·2. The eleventh report of the municipal general hospital shows a great increase in the work. Thus, in 1920 the admissions were 3804, the live births 158, and the number of operations 428, whilst in 1930 admissions numbered 6591, live births 789, and operations 2117. The new patients attending the hospital antenatal clinic numbered 875.

There were 354 cases of diphtheria with 21 deaths —a case-fatality of 5·9 per cent. Scarlet fever cases numbered 1282 with 18 deaths—a case-fatality of 1·4 per cent. During recent years the death-rate from pulmonary tuberculosis has shown a tendency to rise amongst men and to fall amongst women. During the last four years the divergence between the sex-rates has been greatest, the male-rate being

double that of the female. Dr. Buchan is at a loss to account for the low rate among females since 1926. The cancer investigation proceeds with the full coöperation of the medical profession, and records are accumulating as to the incidence, prognosis, and effects of treatment, which will throw some light on the position. Two cases of undulant fever were detected in the city and a small outbreak occurred in an institution, resulting in three definite cases and some doubtful ones. Investigation of the milk-supply revealed cows suffering from infectious abortion.

Municipal houses completed numbered 210, and a new site for 770 houses is being developed. All the properties in the White Abbey area have been acquired and 77 per cent. demolished. Photographs indicate the contrast between the old property and the houses which have now been completed and occupied on the site. There is still serious overcrowding and a scarcity of houses. The applicants for new houses number 3832, 849 of whom are living in apartments.

Mr. W. Halstead, M.R.C.V.S., states that the average cow population is 4133, housed in 264 dairy farms. In these herds 14 cases of tuberculosis were found by inspection, 11 of which had the udder affected. Of 276 samples of outside milk, seven were reported tuberculous. As a result two cows with udder tuberculosis were found on two farms, but in the remaining five the source of contamination could not be traced. The city dairy farms have been much improved recently, but there is still an ill-founded reluctance on the part of farmers to make full use of the clipping machine on the flanks and udders of the cows.

St. Helens.

Dr. Frank Hauxwell says that St. Helens used to supply half of the patients in the Whiston (poor-law) Infirmary which has now been transferred to the Lancashire County Council. There is an arrangement by which its public assistance patients can be sent to Whiston for five years. As the demand for hospital accommodation is increasing, Dr. Hauxwell points out the great need for a municipal hospital. There are two general hospitals with 136 and 130 beds, but their accommodation is overtaxed. Up to the present the poor-law service both as regards institutional treatment and medical out-relief remains as before. The blind, however, have been taken out of the poor-law and Dr. Hauxwell particularly urges that the young children, without parents or relatives able to maintain them, who are at present admitted to poor-law nurseries, should be immediately removed.

A new maternity and children's hospital to accommodate 15 maternity cases and 22 ailing and debilitated children was opened in April, 1931. During 1930 the corporation provided for 468 maternity cases at the St. Helens Hospital and for 58 at the Old Whint Hospital. The Old Whint Hospital has now been closed and the children transferred to the new hospital. All municipal maternity cases will be admitted in future to the new hospital. Births numbered 2343, and 850 women attended the antenatal clinics. Of these, 179 were sent by midwives and 16 by doctors. Most of the patients sent by midwives were primigravidæ. Dr. Hauxwell presses for a postnatal and gynæcological clinic, and the council has applied for the Ministry's approval to the establishment of such a clinic, where advice on birth control can also be given on the restricted lines laid down by the Ministry.

Measles was again prevalent in 1930, and instead of occurring as formerly on alternate years, this is the seventh year in succession in which measles has been epidemic during some part of the year. The isolation hospital has accommodation for 136 patients, but is badly in need of a block of single cubicles. There is much delay in notifying pulmonary tuberculosis. In more than a quarter of the cases notified last year the duration of life after notification was only six weeks. The present X ray apparatus at the dispensary is practically useless for diagnosis purposes, and a modern apparatus is necessary, but the dispensary itself is in need of transfer to more suitable premises. Only 54 contacts were examined during the year.

In his 1929 report, Dr. Hauxwell stated that the emission of black smoke from industrial chimneys was about three times what it ought to be. The observations made in 1930 confirm this statement. The range of black smoke varied from 0 minutes to a maximum of 30 minutes during the half-hour observations. The average emission per half hour was 5·65 minutes as compared with 6·06 minutes in the previous year. There are about 18,500 inhabited houses and the local authority owns 2148. The prevailing types are of 4- and 5-roomed houses. There are no underground dwellings and only 120 back-to-back houses. There is a considerable shortage; and of 1100 applicants for municipal houses, 32 per cent. were found to be overcrowded. Much of the overcrowding is due to several generations occupying the same house. There is considerable difficulty in obtaining suitable sites mainly owing to the danger of colliery subsidence. During the next five years it is intended to deal with eight improvement areas and 255 individually unfit houses, and to erect 1199 houses of which 800 will be for new housing.

SCHOOL MEDICAL SERVICE.

—	No. on roll.	Average attend-ance.	Routine inspec-tions.	Special exams. and reinspec-tions.	Percentage of defects.
Colchester ..	5,841	89%	1,708	3,210	23·0
City of Leeds	57,223	—	18,253	66,299	34·3
Brighton ..	16,372	14,990	4,691	5,363	18·4

Colchester.

Dr. W. F. Corfield's report contains many of the signs of efficiency. Ascertainment is thorough, and the parents' appreciation of the medical inspections is shown by the fact that they were present with 85 per cent. of the children. Skin diseases show a marked decrease; cleanliness in several schools reached the 100 per cent. level, which well deserves their enumeration. The provision for exceptional children, except for two groups, is nearly complete. An inquiry was conducted by Dr. R. W. Cushing over the past 18 months into the frequency with which the heart suffers more or less permanent damage after scarlet fever. Of 344 children who had been in hospital in a given year, over 26 per cent. showed signs and symptoms of heart trouble, usually myocardial, only 1·4 per cent. being deemed to have valvular disease. From experience with Army recruits and candidates for appointments many medical officers had their suspicions, but Dr. Cushing's figures are surprisingly high; they also indicate the desirability of a special class for delicate children. It is a pity that in the pursuit of economy the inclusion of such a class and a room for sunlight treatment was cut out when the new school was built at Loxden. The most noteworthy advance made in the year was the appointment of a so-called full-time dentist, who was given the assistance of a dental nurse. How much there was to do is seen in the fact that 87 per cent. of the children inspected required dental treatment, many of them with seriously septic conditions. The dentist, Mr. J. F. Godfrey, L.D.S., devotes special attention to conservative work, and the effect of his appointment may be judged by the following figures:—

Fillings.	1928.	1929.	1930.
Permanent teeth	703	927	1575
Temporary teeth	27	58	444
Total number of fillings ..	730	985	2019

Casual dental patients are not encouraged, for they disorganise the plan of systematic treatment. To

make the scheme adequate, the dentist should be really full-time; that is, he should be transferred to the borough on the three half-days devoted to county work. There should be a special room for the dental clinic alone. Dental education is given in the form of lectures on oral hygiene, and Mr. Godfrey thanks the teachers who have aided him in his efforts.

City of Leeds.

Dr. A. Wear notes that at the end of the year 1930 there was again unfinished work which had to be carried over to the next year, including vision, throat, and dental cases. If would thus appear that the school medical staff needs strengthening. There is a central clinic with eight branches, each of which supplies the needs of its own district except for the more specialised work. One branch clinic, that at Meanwood-road, is in need of drastic alterations. The aural surgeon, Mr. A. Sharp, considers that nasal sinus infection is present far more often than commonly supposed, giving rise to general debility, chronic cough, and early bronchiectasis. In these children, who are mostly over 6 years of age, the prevailing symptoms are frequent winter colds, frontal headache, and intermittent discharge from the nose. The turbinals appear large, pale, and flabby, and there is pus or muco-pus in the lower or middle meatus. The sinus involved is usually the maxillary antrum, rarely the ethmoid, hardly ever the frontal. Many of them get well with simple saline treatment persisted in over a period of months. He adds that at least 10 per cent. of tonsil and adenoid cases have infected sinuses; half of these get well if tonsillectomy is thorough, the turbinals are cauterised, and nose drill is carried out, but in others the antrum must be drained through the lower or middle meatus. In the past year there have been 100 cases of this obstinate type. Dr. George Stockwell, after a critical survey of the facts, records disappointment with the results of treatment by artificial sunlight. Four trained nurses are employed full time in the teaching of mothercraft. An inquiry into the relation between altitude and the prevalence of respiratory disease, begun in 1925, has been continued, and the evidence that chest disease is much more frequent at low altitudes is increasingly strong this year, the ratio being nearly 4 to 1. For some years Dr. Stockwell has been trying to devise some simple means of assessing the nutrition of any child at the routine inspections. In practice he finds the quotient, weight in pounds divided by height in inches, to be useful. Plans for an open-air school at Farnley have now been approved.

Brighton.

In many areas institutions formerly administered by the guardians have been taken over by education committees, with the result of increasing the school medical officer's duties and widening his interests. At Brighton, for example, the access of medical inspection to the Warren Farm School has revealed a group, small it is true, of well-nourished children with a striking prevalence of healthy throats. Treatment of tonsils and adenoids in the elementary schools, delayed by epidemics, has now been caught up, 316 cases having been dealt with. The results have been good; in 92·6 per cent. of children suffering from deafness there was cure or improvement, in 90 per cent. discharging ears dried up, and two-thirds of the children with enuresis were cured. Dr. Duncan Forbes does not further comment on these figures, but the improvement of enuresis is of special interest. Several reasons have been suggested for this happy result. Some authors explain the cures by suggestion, but this can scarcely be a complete explanation, for other operations do not have so marked an effect. Others note that adenoids and enlarged tonsils obstruct breathing, and thus produce increased abdominal pressure—a hypothesis which has good support, though it seems too mechanical to be complete. Others, again, point to the way in which adenoids interfere with sleep.

Skin conditions associated with dirt seem rather common. Impetigo and septic sores together total nearly 2000, and scabies shows a substantial increase. Ringworm, however, has become less prevalent in Brighton as in so many other places. The orthopædic department has been transferred to new and better premises, and is continuing its beneficent activities with cases sent not only from the schools but also from infant welfare departments (38 cases) and the tuberculosis department. Brighton is fortunate in being the headquarters of a guardianship society which holds three industrial classes, for boys, girls, and juniors respectively, and relieves parents of the care of ineducable children. The dental staff is inadequate, now that parents are beginning to realise the need for proper care of the teeth. The number of casual cases—viz., 1893—is a great increase on previous years, and cannot be considered altogether a good sign. School closures were rather extensive, over 13 departments being concerned, though for the most part only for the younger infants. The provision for exceptional children appears satisfactory, save for the lack of an open-air school. It may seem paradoxical for one to be needed in Brighton, but there are in fact 122 delicate children on the registers.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 7TH, 1931.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 71 (last week 42); scarlet fever, 1860; diphtheria, 1035; enteric fever, 36; pneumonia, 1141; puerperal fever, 44; puerperal pyrexia, 120; cerebro-spinal fever, 33; acute poliomyelitis, 4; acute polio-encephalitis, 1; encephalitis lethargica, 10; continued fever, 1; dysentery, 25; ophthalmia neonatorum, 96. No case of cholera, plague, or typhus fever was notified during the week.

Of the 71 cases of small-pox 55 were reported from the county of London, and of these 43 from Lambeth, 4 each from Bethnal Green and Islington, 2 from Finsbury, and 1 each from Camberwell and Wandsworth.

The number of cases in the Infectious Hospitals of the London County Council on Nov. 10th–11th was as follows: Small-pox, 113 under treatment, 5 under observation (last week 101 and 6 respectively); scarlet fever, 1774; diphtheria, 1493; enteric fever, 10; measles, 227; whooping-cough, 400; puerperal fever, 15 (plus 11 babies); encephalitis lethargica, 220; poliomyelitis, 5; "other diseases," 157. At St. Margaret's Hospital there were 6 babies (plus 1 mother) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 1 (0) from enteric fever, 22 (2) from measles, 1 (1) from scarlet fever, 20 (4) from whooping-cough, 33 (8) from diphtheria, 74 (14) from diarrhœa and enteritis under two years, and 66 (6) from influenza. The figures in parentheses are those for London itself.

Manchester reported the only fatal case of enteric fever. Three deaths from measles were reported at each of Stoke-on-Trent, Liverpool, and Manchester. Liverpool also reported 3 deaths from whooping-cough. Diphtheria claimed 6 victims at Liverpool, 3 at Hull, 2 each at East Ham and Manchester. Diarrhœa was credited with 5 deaths each at Nottingham and Liverpool, 4 each at Birmingham and Manchester, 3 each at Stoke-on-Trent, Birkenhead, Leeds, and Hull.

The number of stillbirths notified during the week was 238 (corresponding to a rate of 37 per 1000 births), including 39 in London.

ARUNDEL HOSPITAL.—The Duchess of Norfolk on Nov. 7th opened a new cottage hospital, erected on a site given by her son, the Duke, on the Chichester road. The original hospital, founded in 1906, was carried on by the Norfolk family until 1917, when it was taken over by the town. Of late it has proved much too small for present needs, and last summer, following a gift of £5000 from Miss Kathleen Mitchell, of Arundel, and the gift of a site, the governors decided to build a new hospital.

CORRESPONDENCE

ANÆSTHETISTS IN THE UNIT SYSTEM.

To the Editor of THE LANCET.

SIR,—It is common knowledge that the members of the medical profession derive great satisfaction and prestige from the enormous amount of charitable work which they perform, and in none is this feeling more obviously displayed than in those who are privileged to serve in an honorary capacity, in what were formerly the great free hospitals of the country. Anything in such a service which might be regarded as an injustice to individuals must inevitably operate in the same manner as a piece of grit in an otherwise smoothly working mechanism, and should be sought out and removed. Recent progress has resulted in the formation of teaching units whose work pertains rather to the medical school than to the hospital, and it is now possible to find specialists in anæsthetics working in an honorary capacity side by side with highly paid whole and part-time officers, whose salaries are derived from a flourishing incorporated institution which may be only one constituent of a still greater university, receiving a very substantial educational grant from the national treasury.

I am aware that in some instances none has been found willing to work under these conditions, but it would be interesting to know what kind of defence, if any, can be put forward by those responsible for this programme, in favour of thus discriminating against one member of a team whose work in the operating theatre is an essential antecedent to that of the other members.

I am, Sir, yours faithfully,

London, W., Nov. 15th, 1931. W. HOWARD JONES.

ALBUMINURIA IN PREGNANCY.

To the Editor of THE LANCET.

SIR,—May I offer some observations on one or two points raised by your leading article of Oct. 31st? Constriction of the chest by a tight band, the position of lordosis, slow breathing, filling the belly with saline solution, and severe exercise—any of these manœuvres may cause albuminuria and they all act by producing congestion of the kidney. Congestion causes a severe parenchymatous degeneration of the kidney, lowers its resistance to infection, and may possibly lead to nephritic changes. Not all the competitors in a cycling race suffer from albuminuria after the race, but half of them may pass large amounts of albumin and casts of all kinds in their urine. If the position of lordosis adopted for 40 minutes can increase the permeability of healthy kidneys to albumin for 24 hours, I submit that it is reasonable to suppose that a lesser degree of congestion, frequently effected, could alter this permeability for several weeks or even months. I did not feel justified in attempting to prove this contention, but it is open to anybody who doubts it to place himself—or some volunteers—in Walcher's position twice daily for a week.

Eclampsia undoubtedly occurs apart from albuminuria and it is, I suggest, immaterial whether 20 per cent. or only 5 per cent. of the cases are known to have passed a urine free from albumin shortly before the convulsions commenced. It is also known that a woman may recover completely from eclampsia and give birth to a living child some four or five weeks later. I have at the moment three patients under my care who suffered from severe albuminuria during pregnancy. In none of them was the albuminuria discovered until after the eighth month of pregnancy and in no case were casts found in the urine. Now, after periods ranging from six weeks to three months after confinement, they are all passing considerable, although decreasing amounts of albumin in their urines. Is it to be seriously contended that a nephritis, of any kind whatever, could have such a sudden onset, and provoke such a degree of albuminuria without casts appearing in the urine?

I fully agree with Dr. Gibberd that pregnancy causes severe damage to patients who suffer from chronic nephritis. I also agree that chronic nephritis is not always associated with albuminuria; indeed, in laboratory animals practically never. I feel however that the upright position makes it probable that if every specimen of urine passed for a week were carefully examined, both albumin and casts would invariably be found at some time in every patient suffering from chronic nephritis. He claims that pregnancy is a *delicate* test of the kidney functions, but does not make it clear whether some hypothetical toxin or increased work provides the test. I would suggest that he endeavour to procure the kidneys of patients he has labelled as occult nephritis, who happen to die from some accident, and demonstrate the lesions associated with that condition. He will forgive me if I prophesy that they will be as difficult to find as in the kidneys of the only patient suffering from orthostatic albuminuria who is reported as having come to autopsy. Certain it is that the kidneys from the majority of women dying from eclampsia or toxæmic accidental hæmorrhage show no nephritic lesions.

In the meantime perhaps he would test the permeability of the kidneys of his cases of occult nephritis to albumin, either by placing them in Walcher's position or by giving them the whites of eight eggs in 25 c.cm. of alcohol on an empty stomach? It is surely significant that out of the limited number of apparently healthy men and women I examined, two suffered from an extreme degree of albuminuria as a result of the manœuvres I recorded.

I am, Sir, yours faithfully,

G. W. THEOBALD.

Devonshire-street, W., Nov. 17th, 1931.

CANCER OF THE CERVIX.

To the Editor of THE LANCET.

SIR,—In your issue of Nov. 14th Mr. Stevens refutes the extraordinary statement made by your reviewer of his book "Diseases of Women"—viz., "It is unfortunate that Mr. Stevens should perpetuate the error that the most frequent variety of cancer of the cervix is the squamous epithelioma. By far the most common variety is columnar cancer; squamous epithelioma is really rare."

Your reviewer is apparently still unconvinced of his error, yet the true facts are easy to find out. It is the custom in most leading clinics, treating cancer of the uterus with radium, to make a biopsy of every case and to keep a section, in order to provide scientific evidence. At the present time there must be thousands of sections available for reference. At the Marie Curie Hospital we have already treated over 700 cases of cancer of the uterus and all the sections are available since the clinic started work

six years ago. About 90 per cent. of the cases of cancer of the cervix are squamous epitheliomata. This figure agrees very closely with the reports from such centres as Radiumhemmet, the Fondation Curie, the Mayo Clinic and the Memorial Hospital, New York. It is, in fact, difficult to accept your reviewer's opinion seriously.

I am, Sir, yours faithfully,

HELEN CHAMBERS.

The Marie Curie Hospital, N.W., Nov. 16th, 1931.

To the Editor of THE LANCET.

SIR,—Mr. Stevens's letter of protest to the statement of your reviewer that in carcinoma of the cervix "by far the most common variety is columnar cancer; squamous epithelioma is really rare" was fully expected; for it was clear that such a view, so contrary to the opinion of the recognised authorities, could not pass unchallenged. The greatest authority on the histology of carcinoma of the cervix in recent times was the late Prof. F. Kermauner, who expressed the view, as recently as 1928, that squamous epithelioma of the cervix was ten times as frequent as columnar cancer. I believe that the opposition to the opinion of your reviewer would be overwhelming if all the available evidence could be collected together. The reiteration of his view in the footnote to Mr. Stevens's letter necessitates further discussion. Perhaps the following points may help to explain the doubts which one supposes exist in his mind.

Metaplasia is commonly seen in all forms of carcinoma of the uterus. Small areas of squamous metaplasia can usually be seen in carcinoma of the body; in carcinoma of the isthmus, metaplasia is invariably extreme, and squamous cells frequently outnumber the columnar cells. In both cases, however, the tumour is primarily an adenocarcinoma and the metaplasia a secondary manifestation. In the cervix, columnar-celled growths are rare, and I personally should have thought they were less common than Kermauner believed. The carcinoma of the cervix which is seen most frequently is a squamous-celled growth, but it is not uncommon to find cervical glands closely related to the malignant squamous cells in the depths of the growth. In these areas the structure is not that of an adenocarcinoma with squamous metaplasia of the malignant cells; the malignant change primarily involves the squamous cells.

I presume that your reviewer prefers to call the common type of carcinoma of the cervix a columnar-celled growth because the transition between the columnar cells of the glands and the squamous cells of the growth can frequently be demonstrated. I do not think that this opinion demands any great respect for the following reasons. Most of the very early carcinomata of the cervix that one sees can be demonstrated to arise from the squamous epithelium of the portio. It must also be remembered that the epithelium in the neighbourhood of the external os is in a state of dynamic equilibrium in the type of cervix which tends to become cancerous, so that healthy columnar cells are continuously undergoing metaplasia into squamous cells. A similar relation of squamous cells to columnar cells is therefore to be expected in the base of a carcinoma of the cervix. Most important of all, however, is the almost invariable absence of malignant change in the columnar cells of the glands which lie in the vicinity of the growth. If this common form of carcinoma of the cervix were composed of a deep layer of adenocarcinoma with squamous metaplasia of the surface cells, something might be said of the reviewer's point of view: but this is not the case.

I presume also that your reviewer limits the term squamous epithelioma to the "ripe" or cancroid tumour of continental authorities. I think it is generally admitted that this growth belongs to the same group as the common form, and that its characteristics are determined by the degree of differentiation of the malignant cells. If the view of your reviewer is accepted all sorts of troubles can be foreseen. For example, he might maintain that the vagina is lined by columnar cells and that the cells we see are not squamous at all, but only columnar cells in a state of metaplasia.

Lastly, the book under review is intended for the use of students. It seems unreasonable to inflict more controversial matter upon them.

I am, Sir, yours faithfully,

WILFRED SHAW.

Weymouth-street, W., Nov. 14th, 1931.

PSYCHOLOGICAL ASPECTS OF GYNÆCOLOGY.

To the Editor of THE LANCET.

SIR,—Dr. Fairbairn, in his Bradshaw lecture (Nov. 7th, p. 999), has performed a very great service by calling attention, in his clear, forcible, and robust fashion, to the fact that there is a psychological aspect, I will not say of gynæcology, but of women; a fact in this country almost universally ignored, at any rate by those medical men and women who are not psychologists. But, may I venture to suggest that Dr. Fairbairn will perform an even greater service if he calls attention to the need for the incorporation of the psychological study of women and their disorders in gynæcology, *on the basis of one of the recognised psychological techniques.* The need is clamant for not only every gynæcologist, but every *doctor* being acquainted with some psychological technique, no less than with some Listerian, some Pasteurian, some clinical, and some "post-mortem" technique. A vague eclecticism, a dilettante recognition of the "psychological factor in disease" is of as little value nowadays as would be the practice of urinoscopy in place of the modern biochemical techniques. Why, then, should there be hesitation in recognising the fact? Cannot the new College of Obstetricians do something about it? Or is that excellent body going to be content to fulfil the kind of functions that, in another relation, are performed by the College of Heralds, the City Companies, and our gradually dying ecclesiastical and academic institutions—so few of which have any relation to modern life?

May I give point to my remarks? Twice within the last twelve months have I seen an active woman, under the age of forty, sterilised by means of X rays, under the pretext that the "artificial menopause" would bring her relief from her many physical ailments. Both women are attractive and intelligent; both are married. The first complained, and with reason, of intense menstrual pain: the second, of intense and almost continuous migraine. In each case the physical ailments were and are the expression of intense mental suffering. The first woman, married twelve years ago, is still a virgin, a fact ignored by the gynæcologist who sterilised her: the second, although the mother of a child born in the first year or two of married life, tells me that her husband has been impotent for twelve years.

A few months ago I called attention in your pages to the indignation with which the Duchess of

Atholl had spoken in Parliament concerning the ritual circumcision of African girls living under the British flag. I venture to think that the wanton and ignorant sterilisation of British gentlewomen by gynæcologists, merely because these gynæcologists are too ignorant to appreciate the origins of neurosis, is an abomination which can hardly be sufficiently condemned. One is tempted to ask why no woman doctor has yet lifted up her voice to help her own sex towards a recognition of the "psychological factor" in their many special ailments, or some of them. Can it be that too many women doctors, unacquainted with modern psychological work, are also too unacquainted with some aspects of *life* to be altogether safe guides to their fellow-women in some matters? I almost fear it may be so.

Recently I saw an intelligent and attractive woman of forty whose distress about the amputation of her breast is severe and lasting. The breast was removed—admirably from the surgical point of view—by a clever woman surgeon. *After* the complete removal of the breast, the verdict of "non-malignant" was given, and surprise was expressed that the patient, instead of being joyous at the good news, deplored the unnecessary removal of what had been her pride, and the fact that she is now, as she says, "mutilated" for no good reason. Could not the verdict of the pathologist have been arived at *before* the complete operation was performed? And how could anyone who knows what life is, for one moment fail to realise the agony caused to a woman who, at forty, sees what she considers her last chance of gaining a man's love taken from her by another woman's thoughtlessness? Far be it from me to suggest that women doctors are in anyway less than men's equals: my point is just this, that both men and women doctors, who are masters of technique, *but not of life*, fail utterly when it comes to the point. But, to return to the two sterilised, and yet still desirous wives of impotent husbands, what would a gynæcologist or a radiologist say if *his* castration was proposed on account of *his* neurosis arising from his wife's infidelity? Sauce for the goose is surely sauce for the gander.

Is not the time gone by when there can be any pretence that medicine, surgery, and gynæcology, *without* psychology, are aught but barbarous and insufficient?

I am, Sir, yours faithfully,

F. G. CROOKSHANK.

Wimpole-street, W., Nov. 17th, 1931.

COMPILATION OF HUMAN PEDIGREES.

To the Editor of THE LANCET.

SIR,—May I be allowed to say that I derived much pleasure from reading your annotation with the above heading in your issue of Oct. 31st (p. 975). I am familiar, through the courtesy of Dr. C. P. Blacker, General Secretary of the Eugenics Society, with the comprehensive schedule for recording pedigrees of disease and defect, drawn up by that body, to which you refer. It is, in my opinion, high time that serious attention were given to the importance of having accurate and full records of family and personal disease and defect, both by the profession and the public. With a view to enlightening the public I should like to see advantage taken of platform and press, and I trust the Eugenics Society has designs to this end. At the meeting of the British Association on Sept. 25th last, Dr. Blacker read an instructive paper entitled the Rôle of Genetics in the Future of Preventive Medicine, which may be studied with profit by all desirous of information on this subject.

My experience has been in the domain of psychiatry, that branch of it connected with public mental hospitals. I have taken, and seen taken, and studied, family and personal histories, in accordance with carefully prepared headings, for 39 years in respect of in-patients, of out-patients, also, for the last seven of these. My experience has been that if one can carry the tale back to the patient's grandparents that is usually as far as one can get; often to the grand-parents on one side only. Concerning aunts, uncles, cousins, the information has been scrappy, and most of us, I fancy, are in the same position as regards our own anamnesis. In any case, all this is based on recollection. Yet upon such meagre and uncertain data one has been asked to assume grave responsibility in such matters as the outlook for recovery and relapse of the patient, the propriety of his marrying, should he recover, the prospects of his children and relatives. Is it not the case that, apart from what one may call rarities, such as Friedreich's ataxy, hereditary cerebellar ataxy, hæmophilia, pseudo-hypertrophic muscular paralysis, Huntington's chorea, we know exceedingly little about the transmissibility of disease and defect, or the tendency thereto? Assuming that the Royal College of Physicians were requested to set up a committee for the purpose of formulating information to serve as a guide to practitioners on the subject of inheritance of disease and defect, is it reasonable to expect that reliable information could be given, apart from pathological curiosities? I think not; nor will the necessary data be available until some system is devised by which family pedigrees, with individual case-sheets, such as those issued with the comprehensive schedule of the Eugenics Society, are kept under medical supervision, and have been kept for several generations. Such a system would start on a voluntary basis as a result of educational propaganda and end by being made compulsory, under the ægis of the Ministry of Health.

It has recently been suggested that everybody's finger-prints should be compulsorily recorded. A praiseworthy idea, since we are all potential criminals. Should the pound fall to five shillings I shall have no scruples about purloining provender from the shops, thereafter invoking the hospitality of His Majesty. Whoever made this proposition has overlooked the well-known maxim about excess of zeal. In these days, to show zeal is to be written down as "cycloid" if not classed as an out-and-out "cyclophreniac." Should the impeachment be just, there is the added and serious risk of transmission to one's offspring. The case for compulsory pedigrees has nothing to fear from comparison with that for compulsory finger-prints. At the German Research Institute for Psychiatry (Kaiser Wilhelm Institute), Munich, there is a genealogical-demographical department, under Prof. E. Rüdin. Amongst investigations carried on there is a series concerning the inheritance of schizophrenia and manic-depressive insanity. The belief that the descendants of persons suffering, or who have suffered, from these conditions are definitely more liable than the offspring of the average population to be psychotic or psychopathic is pretty widespread amongst specialists. The German workers seek a scientific foundation for it, and the figures of transmission they have already published are very significant. We have here nothing comparable to this institute, although the psychoses and psycho-

neuroses may, with much reason, be regarded as the most important medical fields from the standpoint of information concerning hereditary transmission.

Dr. Blacker, in the paper alluded to, envisaging the time when accurate records will be available of the heredities of all permanent residents in the United Kingdom, refers to advisory centres analogous to the German "marriage advice bureaux," which it is to be hoped will hereafter be set up throughout this country, under the jurisdiction of the local authorities, at which a well-grounded genetic opinion will be obtainable. The following citations from his paper may be permitted.

"It is certain that in the future medical men will be increasingly consulted upon questions of eugenic prognosis, and that knowledge of the elementary principles of genetics in their application to man will play an increasingly important part in the medical man's equipment." Dr. Blacker would therefore suggest "to those medical schools which may have occasion to revise the schedules of their biological preliminary examinations that an elementary knowledge of the principles of human genetics may well prove to have a considerably greater usefulness than much that is now taught."

And in order to interest the medical profession in the problems of human heredity he suggests the formation of a section of the Royal Society of Medicine whose subject would be human genetics.

I have not yet seen any thorough account of the working of the German marriage-advice bureaux. If not already undertaken, the subject seems worthy of study and report by a properly qualified British observer. According to a recent article[1] by Prof. J. Wagner-Jauregg, of Vienna, there are many more than 100 of these "Eheberatungs stellen" in Germany, and there is one in Vienna. But it seems that only a few take advantage of them, and the number so doing has scarcely increased although the bureaux have been open some years. The above is my note at the time of reading the article, but, although unnoted, I feel sure I am correct in adding that Prof. Wagner-Jauregg makes a further statement, to the effect that the persons mainly seeking advice belong to the more conscientious, rather over-scrupulous kind, the kind whose marriage is desirable, but who are apt to take too seriously reservations and criticisms made by the expert whom they are consulting, on the basis of their information, and to abstain from marriage. Nevertheless, I believe that a demand for these advice bureaux will gradually arise with the spread of education.

It is certain that no such centres can function until there are properly trained experts available to take charge of them. Such training cannot be given except on the basis of knowledge which has accrued from carefully kept, adequate records of personal and family disease and defect, extending over several generations.

I am, Sir, yours faithfully,

Hove, Nov. 7th, 1931. EDWIN GOODALL.

FEMALE CIRCUMCISION.

To the Editor of THE LANCET.

SIR,—Dr. Sequeira's paper (Nov. 7th, p. 1054) should be noted by all who are interested in the welfare of the natives of Africa. He has reviewed the subject in full, and this should be of value to the many persons in this and other countries who have imbibed strange ideas about native customs. As one who has practised in Nigeria for many years, and who has seen the natives under all circumstances, may I say that female circumcision there is practised not only because it is the custom, but because mothers and girls say they are ashamed for the clitoris to be visible to the members of the family when bathing in the river or when naked in the house. Even after a woman has been married, if the labia hypertrophy she will not rest until something has been done to remove the offending skin. Among the pagan natives the circumcision is done either by an old woman, or the blacksmith, who also files the teeth of the children to make them more handsome in appearance.

Many well-meaning persons judge the customs of the natives from their own point of view, but until one finds the motives which inspire the actions of the African native, it is useless to criticise them. They could show in many ways an example to many civilised persons, and their gratitude when given surgical or medical relief from their sufferings is astonishing. They live up to their knowledge, and no one can do more than that. I lived in a town with over 80,000 natives, and a province of 17,000 square miles gave me opportunities for seeing all phases of native life. I have a great deal of sympathy with them in their methods of life, and I found that having been shown a way which meant health for them and their children, they were always ready to listen to my advice.

As far as Nigeria goes I have never seen any ill-effects of female circumcision.

I am, Sir, yours faithfully,

J. R. C. STEPHENS.

St. Austell, Cornwall, Nov. 15th, 1931.

[1] Ueber Eugenik, Wien. klin. Woch., Jan. 2nd, 1931.

HUGHLINGS JACKSON FUND.

To the Editor of THE LANCET.

SIR,—May I correct an error in my letter which you published last week? The name of the artist who is designing the memorial medal should have been given as Mr. Percy Metcalfe. At the same time may I express the hope that any of your readers who may wish to subscribe to the memorial to Hughlings Jackson should send their subscriptions to me as soon as possible, as it is intended to close the list in the near future.—I am, Sir, yours faithfully,

WILFRED HARRIS.

56, Wimpole-street, W., Nov. 16th, 1931.

MEASLES ALMOST WHOLLY UNPREVENTABLE.

To the Editor of THE LANCET.

SIR,—In your annotation on Nov. 7th you express surprise that the *Times* should be able to tell its readers that measles "remains almost wholly unpreventable." I think that most medical officers of health controlling populous areas would agree that under the present circumstances practically all elementary school-children are infected by measles or are immune from measles after an epidemic has occurred in the school which they attend, also that once started on its course the measles epidemic spreads to all schools not recently infected; even Dr. S. P. Bedson, because he recognises that it is wholly unpreventable sooner or later, prefers a modified attack to prevention in robust children over two years of age, surely then, the *Times* is justified in its statement.

I was indeed pleased to read the article in the *Times* as, far from taking a pessimistic view, many doctors and parents hold the quite mistaken belief that by the exclusion of home contacts the spread

of measles in schools can be controlled. Unfortunately this belief is fostered by the Board of Education, who whilst they say that school closure simply delays the spread of an epidemic, at the same time advise the exclusion of all home contacts from the infant department, and the over-sevens who have not had measles, evidently expecting to do by the exclusion of contacts what they say cannot be done by closure of the whole department. Also general practitioners seeing patients at home and quite ignorant of the course of the epidemic in the school light-heartedly exclude all home contacts. Naturally the man in the street except he is taught that measles is almost wholly unpreventable by such editorials, as to my joy appeared in the *Times*, is apt to think a medical officer of health is failing in his duty if he does not go in for wholesale contact exclusion, a custom which, whilst involving considerable administrative expense and loss of education, does on balance no good whatever. If this apparently dogmatic statement is true, then an immense amount of clerical work at present is useless—namely, the keeping of tabulated records of each school-child's history of measles so that one can readily determine on the occurrence of measles which children should and which should not be excluded from school. Even more important is the unnecessary loss of education caused by the exclusion of contacts. From the point of view of economy of both time and money, these rules as to exclusion, continued solely because of the mistaken belief that measles is preventable, should be rescinded.

I need hardly say I am in hearty agreement with *delay* of the attack to 5 years of age, with the exclusion of under fives and delicate children from infected schools, also with the adoption of all possible means to render the actual attack as mild as possible.

I am, Sir, yours faithfully,

DUNCAN FORBES,
Medical Officer of Health, Brighton.

Nov. 13th, 1931.

To the Editor of THE LANCET.

SIR,—In view of the approach of an anticipated epidemic of measles it may perhaps be of interest to your readers to know that the London Fever Hospital admits patients suffering from this disease, and that some 2000 such cases have received treatment here during the past ten years.

I am, Sir, yours faithfully,

H. J. SAY,
Secretary.

London Fever Hospital, Islington, N.1, Nov. 6th, 1931.

PSYCHOLOGICAL CLINICS FOR CHILDREN.

To the Editor of THE LANCET.

SIR,—In her letter of Nov. 7th (p. 1046) Dr. Margaret Lowenfeld makes reference to a pamphlet (Child Guidance by Team Work) published by the Child Guidance Council. She states that in that pamphlet the view is expressed that the Child Guidance Council limits the field of its activities in psychological medicine to behaviour disorders of children and juvenile delinquency, and she implies that the treatment of minor physical ailments and psychoneuroses of childhood is neglected. I should like to direct attention to pages 4 and 5 of the same pamphlet, where the scope of child guidance treatment is roughly outlined. There reference is made to "material conditions" (such as cause, instability, and fatigue), "improper diet," "physical disease even of a slight and chronic nature" and "direct treatment of mental symptoms"; besides advice on problems of intelligence, special tuition in cases of specific learning difficulty, and environmental adjustment. The only limitation stated or implied is that psycho-analysis is not employed.

I am, Sir, yours faithfully,

WILLIAM MOODIE, M.D., M.R.C.P.,
General Secretary, Child Guidance Council.

Buckingham Palace-gardens, S.W., Nov. 17th, 1931.

THE LÜBECK TRIAL.

(FROM OUR BERLIN CORRESPONDENT.)

(*Continued from p. 1099.*)

THE trial drags on and the public interest in it wanes. Witnesses are still being examined. Dr. Mögling classified the cases by their degree of infection, remarking that a slight reaction could not be regarded as an illness or injury. Asked whether a slight infection might not even have been of benefit by protecting the children against tuberculosis—a question creating so much stir among the parents of the deceased children that they had to be called to order—he replied that the different degree of infection could not be explained by the constitution of the children alone. He thought that possibly (although not probably) some of the children might become ill later.

At this stage the public prosecutor said that as a result of the evidence given he would now charge Prof. Deycke and Dr. Altstädt with manslaughter and gross negligence in the administration of B C G vaccine. Prof. Deycke's negligence lay in the fact that he had cultivated the B C G and had produced the emulsions without having previously ascertained that the B C G received from Paris was really innocuous. Dr. Altstädt's fault was that he had introduced the Calmette method without consulting previously the German Health Office and without asking the opinion of other medical men of experience. Dr. Altstädt's counsel said he was prepared to answer that charge, and that it would then become necessary to inquire whether in other countries a similar disaster had happened. Dr. Altstädt was then interrogated as to why he had not distributed the original directions for use sent to Lübeck along with the cultures by the Pasteur Institute. He replied that the parents had received a slip describing everything it was necessary for them to know. To the meeting of midwives he had said that the material contained bacilli which had of course been weakened, and he had compared the Calmette method with vaccination. He had instructed the midwives to inform the parents, but he had not insisted that they should say in every case that the emulsion was a kind of vaccine.

EDNAM MEMORIAL CRIPPLES' HOSPITAL.—On the afternoon of Sunday last, locally "Mayor's Sunday," the Prince of Wales opened the Rosemary Ednam Memorial extensions of the Cripples' Hospital at Hartshill, Stoke-on-Trent. The work done by the hospital was begun some 30 years ago by Millicent Duchess of Sutherland, the mother of Lady Ednam, who at the time of her death was raising money for the extensions. The new buildings have cost £20,000, the whole of which has been obtained. The main feature of the enlargement is an out-patients' block, with a large waiting-room, examination rooms, a record room, a massage room, and other facilities. There are also a theatre, an X ray department, and additional accommodation for the staff.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS.

THE FUTURE OF THE SOCIAL SERVICES.

IN the course of the debate on the Address in the House of Commons on Nov. 12th, Lieut.-Colonel FREMANTLE said the supporters of the Government could share the feeling expressed in the Amendment regretting that there was no mention of any intention of restoring and developing the social services. Those who were keen on the social services and supported the National Government at the election felt anxious on that subject, but they wished to approach the matter rather differently because they had been returned by an overwhelming majority of the electorate to give a free hand to the Government. He joined however with those who felt some anxiety as to the future of the social services and they would continue to feel that anxiety until they saw the Government's programme. The social services were of special value to the Conservative party. A traditional part of their platform, and one of the three fundamentals of conservatism laid down by Disraeli, was the welfare of the working classes. The introduction of the idea of imposing State requirements on employers as embodied in the first Factory and Workshop Act was the work of a Conservative Government. The Labour Governments have done practically nothing effective in the matter. The Conservative party—and to a less extent the Liberal party—had been responsible for the long line of social legislation during the nineteenth century. They were faced with real difficulty at the present time in view of the economies that had been necessary. The first thing they had to do was to maintain the social services in a time of fluctuating money exchanges and price levels. They could not go ahead with social services in regard either to health or to education unless an income was coming into the homes of the people. They could not go ahead until the money position had been stabilised. Employment must be improved and the abuse of State funds must be stopped.

ECONOMY WITHOUT LOSS OF EFFICIENCY.

He believed that there was a great possibility of economy in social services without loss of efficiency, and he wished to impress that on the Government. First they must maintain the efficiency of institutions and personnel; secondly, they must make better use of the services which existed; thirdly, they must progress slowly but surely in making further advances. He wanted to feel sure that there would be a general continuance of the movement for better housing, but he hoped that the appalling waste which had been going on would be stopped. They must stop subsidising people who could build for themselves and focus attention on necessities, especially slum clearance and the building of houses at lower prices. They might definitely expect that the Town and Country Planning Bill would be passed into law with necessary amendments very soon. Administration of some institutions must be made less costly. An excellent report was recently made by the Board of Control on the subject of their permanent institutions, especially those for mental defectives. They had learned a good deal from foreign countries. The whole trend of medical and surgical science in recent times had been to show how much better they could get on with much cheaper and simpler material. Whatever they did they must keep their hands off research. That was one of the ways in which they could get better value for expenditure than anything else and the public money spent on it was a drop in the ocean. He hoped the scheme of veterinary research would be brought to fruition. An enormous amount could be done by publicity and education for the proper use of the services that existed. There had been tremendous development under the Local Government Act 1929, and he believed that it would be for the good of local administration if there was now a breathing space for a year or two. Instead of passing new legislation and setting up new officials they ought to get down to bedrock in the proper administration of the new Act. In that way they could make enormous progress without further expenditure. The institutions under the Ministry of Pensions were becoming obsolescent. He had long tried to urge Ministers to bring about some reasonable scheme by which they could get the different medical departments of State to work together so as to deal with that question in an efficient manner.

VOLUNTARY INSTITUTIONS.

Lastly, he wished to emphasise the great value of voluntary institutions in addition to official institutions. They should deal with the matter as common sense men. They needed both types of institution so far as they were efficient and useful. There were large spheres of effort which up to now had been most usefully covered by voluntary institutions and services; the hospitals and nursing services were two instances. They should develop them because they were a means of educating the public to make a proper use of all the facilities which were now available. The report issued recently by the Chief Medical Officer of the Board of Education stated how important it was to secure that extra value which came from self-help among the people. As long as they measured the amount of good done by the amount of money spent so long would they divert the people of all classes from the part they must play in order to make a proper use of the social services.

DRASTIC CONTROL OF IMPORTS:

EFFECT ON MEDICAL AND SURGICAL SUPPLIES.

ON NOV. 16th, in the House of Commons, Mr. RUNCIMAN (President of the Board of Trade), speaking in the course of the debate on the Address in reply to the Gracious Speech from the Throne, said that although the General Election was over the crisis still remained. There was no one however who was now charged with responsibility who was afraid of it; they were determined to tackle it in all its aspects with as much vigour as was open to them. He hoped that they would not allow the cause of economy to slip into the background, otherwise they would find their financial embarrassments would be greater rather than less. He hoped that hon. Members would be forbearing to Ministers who found that they must cut down departmental grants. Unless great efforts were made both inside and outside industry, by the captains of industry as well as by the Cabinet, they would find that the next year would be one of the worst in British history. The first practical question which arose was how our currency could retain its value. The only way to secure that was to see that our adverse trade balance did not increase. If we purchased and attempted to pay for an unlimited amount of imports we should certainly not be able to maintain the value of the pound.

There had been, during the last few weeks, anticipation abroad, as far as the Board of Trade could gather, that the imposition of Customs Duties might be part of the policy of the present Government at an early date, and clever folk abroad—and he had no doubt some clever men in this country—have been trying to get their goods into the country before they became subject to duty. In the opinion of the Government they had been doing this to an excessive extent. In Class III. (wholly or mainly manufactured articles), the most important of the categories in our trade and navigation returns, the importations two years ago, when trade was pretty active, amounted to £28,000,000 in a month; during the ten days of November now just closed they had run up to imports at the rate of £35,000,000, compared with £27,000,000 in October. If they went through the

list of articles they would note some remarkable increases, sometimes as much as 80, 90, and 100 per cent. The Board of Trade had been entrusted by the Cabinet with the task of drawing up schemes of prohibitions or heavy duties for dealing with this situation, and of operating those schemes when they came into force. The Government had come to the conclusion that the best way of dealing with these abnormal importations at once was by giving the Board of Trade the power to issue an Order, which must come up within four weeks for the sanction of the House if it was in session, and if it was not in session, within four weeks after its reassembly. It was proposed to impose on articles to which this Act applied a duty not exceeding 100 per cent. of the value of the article. There was no use doing things by half. They must do it so effectively as to reduce the strain upon our purchasing capacity and without injury to any of our people or industries. These were emergency powers which would expire in six months. The Government were confining themselves to articles under Class III., because, as far as they could see, they would be able to make a large and effective selection without any detriment to either industry or the cost of living in this country. It was hoped that the Bill would be passed through all its stages by Thursday, Nov. 19th. The Government believed that it was necessary that it should receive the Royal Assent on Friday, Nov. 20th.

After some further debate the Address was agreed to without a division.

ARTICLES AFFECTED.

The Articles which come within the scope of Class III., and which may be dealt with under the powers conferred on the Board of Trade by the Bill, are as follows:

Coke and manufactured fuel; pottery, glass, abrasives, &c.; iron and steel and manufactures thereof; non-ferrous metals and manufactures thereof; cutlery, hardware, implements and instruments; electrical goods and apparatus; machinery; manufactures of wood and timber; cotton yarns and manufactures; woollen and worsted yarns and manufactures; silk and silk manufactures; manufactures of other textile materials; apparel; chemicals, drugs, dyes, and colours; oils, fats, and resins, manufactured; leather and manufactures thereof; paper and cardboard; vehicles (including locomotives, ships, and aircraft); rubber manufactures; miscellaneous articles wholly or mainly manufactured.

It is understood that the Orders will relate only to foreign goods, and not to goods coming from any other part of the British Empire.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 11TH.

Prolongation of Insurance.

Mr. BUCHANAN asked the Prime Minister if the Government proposed to continue the present Act for the prolongation of insurance which expires this year.—Sir E. HILTON YOUNG replied: The answer is in the affirmative.

Mr. RHYS DAVIES asked the Minister of Health approximately the number of insured persons who had been able to maintain their membership of approved societies, to the last convenient date, through the operations of the Prolongation of Insurance Act, 1930.—Sir E. HILTON YOUNG replied: A reliable figure of the number of persons whose period of insurance has been extended under the provisions of the Prolongation of Insurance Act, 1930, will not be available until returns have been received from the 7000 approved societies and branches after the end of the current year.

THURSDAY, NOV. 12TH.

Imports of Tinned Skimmed Milk and Milk Powders.

Brig.-General CLIFTON BROWN asked the President of the Board of Trade the money value of tinned skimmed milk and milk powders imported into this country during each of the last three months for which information was available; and from what countries it had come.—Mr. RUNCIMAN replied: The total declared value of the imports into the United Kingdom of sweetened condensed milk separated or skimmed during August, September, and October, 1931, amounted to £225,500, £225,500 and £231,900, respectively, the principal countries of consignment being the Netherlands and Denmark. The value of the imports of milk powders during these months was £28,000, £33,800, and £54,000, respectively, the principal countries being the Netherlands, United States, New Zealand, and Canada. Similar information in respect of unsweetened condensed milk separated or skimmed is not available.

The Town and Country Planning Bill.

Mr. THOMAS WILLIAMS asked the Minister of Health whether it was proposed to reintroduce the Town and Country Planning Bill which passed committee stage during the late Parliament, and which received a large measure of support in this House and in the country. Lieut.-Colonel FREMANTLE also asked the Minister of Health if he would reintroduce the Town and Country Planning Bill.—Sir E. HILTON YOUNG replied: Careful consideration will be given to this matter with a view to an early decision as soon as circumstances permit.

Lieut.-Colonel FREMANTLE: Does the right hon. gentleman recognise that one of the clauses of the Finance Act which was passed made the assessment of properties dependent upon agreements which were included in Clause 29 of this Bill, and therefore a solution is required at once?

Sir E. HILTON YOUNG replied: Undoubtedly that will be taken into consideration on reviewing the question of the reintroduction of the Bill.

Highbury Hospital, Birmingham.

Mr. CROOKE asked the Minister of Pensions if he could make a statement as to the proposal to close down Highbury Hospital, Birmingham; and whether the disabled ex-Service men who would be transferred to another hospital would be given similar treatment and allowed similar privileges as were now afforded at Highbury Hospital.—Major TRYON replied: Owing to the steady decline in the number of patients in the Highbury Hospital—who now number less than 60—it has been decided, in agreement with the Hospital Committee, that the maintenance of this institution as a Ministry Hospital can no longer be justified, and it will accordingly be closed at the end of December. The number of men still requiring institutional treatment at the end of the year will be very small and they will be given treatment in a ministry or a civil hospital, as their cases require, and will enjoy the same privileges as are enjoyed by other pensioners undergoing treatment in those institutions.

Lieut.-Colonel FREMANTLE: Can the right hon. gentleman say whether any use is to be made of this hospital or whether it is to be shut down, and its value practically thrown away when so many hospitals have to be built?

Major TRYON: I should like to have notice of that question as the hospital is being run by a committee and not by the Ministry.

MONDAY, NOV. 16TH.

Coroner's Law and Viewing of Bodies.

Mr. EDWARDS asked the Home Secretary whether he was aware that two men were fatally injured at the Oakdale Colliery, Monmouthshire, on Friday, Oct. 16th; that on Monday 19th the inquest was held at Blackwood, Monmouthshire; that, as the Coroners Act laid down that the coroner who conducted the inquest must not go to the home to view the body if the deceased was resident in another coroner's district, the body of the man who resided at Oakdale was taken from his home to Blackwood, a distance of from two to three miles, to the place where the inquest was held, after which it was taken back again; and if he would take steps to have the law altered so as to prevent this sort of thing happening again.—Sir HERBERT SAMUEL replied: I have made inquiry into the matters to which the hon. Member refers and fully sympathise with the purpose which he has in view. The course which was taken was, as the hon. Member recognises, in accordance with the requirements of the law. It would be better, whenever more than one death unhappily occurs as the result of a single mining accident, if arrangements were made, as is frequently done, to intimate the fact to the coroner, so that the statutory requirement of viewing the bodies may be fulfilled before any are removed outside his jurisdiction.

Milk Industry and Foreign Milk Imports.

Sir CHARLES CAYZER asked the Minister of Agriculture if he had considered the representations submitted by the milk industry in favour of the increased restriction of the importation of foreign milk and milk products; and, if so, what action he proposed to take.—Sir JOHN GILMOUR replied: The representations referred to by my hon. friend are under consideration, but I am not yet in a position to make a statement on the subject.

Imported Milk and Cattle Disease.

Mr. HURD asked the Minister of Agriculture if he had considered the latest report of the Foot and Mouth Disease Research Committee as affecting the risks involved in the importation of dried milk and other milk products from foreign countries where disease was prevalent; and what conclusions he had reached.—Sir JOHN GILMOUR replied: I have considered the report referred to, and while it would appear from the laboratory experiments so far conducted that milk powder, in common with many other commodities, may be a potential carrier of foot-and-mouth disease, it has not been demonstrated that the virus survives in milk powder under trade conditions. The practicability of carrying out further tests under trade conditions is under consideration.

Smell in the House of Commons.

Captain CAZALET asked the First Commissioner of Works, whether he could explain the cause of the smell which penetrated into the chamber behind the Speaker's chair on Friday, Nov. 13th, and at other times; and if he would take steps to remedy it.—Mr. W. ORMSBY-GORE (First Commissioner of Works) replied: The smell referred to was caused by the clearing of a sump, rendered necessary by the recent heavy rain. Steps will be taken in future to do this work at a time when the House is not sitting.

TUESDAY, NOV. 17TH.

Salaries of Local Government Officials.

Mr. MCENTEE asked the Minister of Health the number of local authorities that had adopted the Government's recommendation to economise by reducing the salaries of officials.—Sir E. HILTON YOUNG replied: Returns have not been obtained by the Government and I am, therefore, not able to furnish the desired figures, but information which has been received indicates that salaries have been reduced by a large number of local authorities.

National Health Insurance Policy.

Mr. RHYS DAVIES asked the Minister of Health whether the issue of Circular A.S. 282 to approved societies was an indication of a change of policy in his department to intervene in the domestic administration of approved societies; and why officers of his department were now to be instructed to interfere in the internal affairs of approved societies when this procedure had never before been adopted.—Sir E. HILTON YOUNG replied: The hon. Member appears to be under a misapprehension as to the purpose of the Circular. It has always been the policy of my Department to give help and guidance to approved societies where necessary on matters relating to their administration and for this purpose to make use of the services of its officers. The Circular in question did not indicate any departure from this policy.

Births, Marriages, and Deaths

BIRTHS.

CORMACK.—At "Mossgiel," Felpham, Sussex, on Oct. 14th, 1931, to Dorothy, wife of Lieut.-Colonel H. S. Cormack, I.M.S. —a son.

DOUTHWAITE.—On Nov. 15th at Harley-street, W., the wife of Dr. A. H. Douthwaite, of a daughter.

MAITLAND.—On Nov. 8th, the wife of Charles Titterton Maitland, M.D., Beechcroft-avenue, N.W., of a son.

SELBY.—On Nov. 11th, in London, the wife of Dr. F. L. G. Selby, West African Medical Staff, Nigeria, of a son.

MARRIAGES.

RICHARDSON—HORNIBROOK.—On Nov. 7th at St. James's Church, Gerrards Cross, Group Capt. A. V. J. Richardson, O.B.E., R.A.F., M.B., D.P.H., to Eileen Mary, daughter of W. H. Hornibrook, F.R.C.S., L.R.C.P., D.P.H. Irel., and Mrs. Hornibrook, of The Holt, Gerrards Cross.

DEATHS.

DARKE.—On Nov. 8th, at British Military Hospital, Nasirabad, Rajputana, India, Lieut. Eric G. C. Darke, Royal Army Medical Corps, aged 26.

MCCARTHY.—On Nov. 10th, at a nursing home, Llandudno, Herbert John (Jack) McCarthy, M.R.C.S., L.R.C.P.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages and Deaths.

MEDICAL NEWS

Royal Society of Medicine: Annual Dinner.

Dr. T. Watts Eden presided at the annual dinner of the Society, held on Nov. 12th, at the May Fair Hotel. In proposing "The Royal Society of Medicine," Sir Donald Maclean, president of the Board of Education, remarked that medicine owed as much to the Greeks as his own profession did to the Romans, adding a regret that ancient medical science had not enjoyed the coördinative genius of a John MacAlister. He stressed the national value of the system of school hygiene which had been built up in connexion with public education during the last 25 years. He hoped he would never live to see the day when the voluntary practice of medicine was lessened, but he called for much greater coöperation between State departments and such organisations as the Royal Society of Medicine. The Society showed what could be done by friendly coöperation; its members had no difficulty with dumping, and he welcomed them all as Free Traders, accepting any advance in medical knowledge, no matter whence it came. Speaking officially, he said that if there was anything the Board of Education could do in the way of friendly coördination it should be done. In reply, Dr. Eden said that the education of medical students was suffering from a type of depression common to all heavy industries. The continually increasing scope of the curriculum had added largely to working expenses while leaving revenue practically unchanged. Unlike that of young ladies, the education of a doctor was never finished, and the Society was a great organisation by means of which doctors were carrying on their own education. Its interests were catholic, not sectarian, and its real objective was medicine as a whole. It supplied the corrective to the modern tendency of medicine to become split into disconnected units. During the preceding year two sections had given evidence of vitality by going into voluntary liquidation and being born again as sections of physical medicine and of radiology. The toast of "The Guests" was proposed by Mr. W. Girling Ball, who congratulated Sir Donald Maclean on his triumph in the recent election, welcomed the Society's old friend, Sir William Bragg, O.M., and Nobel prizeman in this year of Faraday's centenary celebration, and mentioned that Lord Dawson, immediate past-president, was donor of the new presidential robe, designed from an old illustration of the robe of a doctor of medicine of Padua in the eighteenth century. Sir William Bragg, in reply, enumerated some of the contributions of physical science to public health, particularly in investigating the influence of noise, bad lighting, and atmospheric pollution. Knowledge so gained might be used for the design of highly complicated instruments of measurement to be used as deterrents. But the results of scientific research were better applied to prevention than to prosecution, to the design of streets, buildings, and rooms in such ways as to reduce unnecessary noise, glare, or pollution. The more such knowledge was available the less frequent would be the occasions for offence. Among the guests were also Sir George Buchanan, Sir Farquhar Buzzard, Colonel F. E. Fremantle, M.P., Sir Ernest Graham-Little, M.P., Sir Gowland Hopkins, Sir Ewen Maclean, Prof. J. M. Woodburn Morison, Mr. Herbert Tilley, and Dr. W. G. Willoughby.

British Hospitals Association.

The annual conference will be held at Liverpool in June next.

University of London Medical Graduates Society.

The fourth extra-metropolitan dinner of the society was held in Bristol on Nov. 13th. Sir John Rose Bradford, president of the society, took the chair, and 30 members attended. The next meeting of the society will be held on Thursday, Jan. 21st, 1932, from 4.0 to 6.0 P.M. at the London School of Hygiene and Tropical Medicine. Applications for membership may be sent to the hon. secretaries at 11, Chandos-street, W.1.

Medical Women's Federation.

The autumn council meeting of the Federation was held at the Medical Institute, Liverpool, on Nov. 6th, with a full agenda of business. A resolution was passed that medical women examiners should be available for those women who desired them for the necessary medical examination required for divorce and nullity proceedings. The council considered a report by the International Labour Office on "Women's Work," and protested against some of its inaccurate statements and statistics. Delegates reported on the recent meeting of the International Medical Women's Association held in Vienna (see THE LANCET, Oct. 24th, p. 929). The annual general meeting was appointed to be held in Oxford in May next. In the evening Dr. Mary Deacon presided at a dinner at the Adelphi Hotel.

British Science Guild.

The seventh Norman Lockyer lecture will be given by Dr. H. H. Dale, secretary of the Royal Society, on Tuesday, Nov. 24th, at 4.30 P.M., in the Goldsmiths' Hall, London. The subject will be Biology and Civilisation.

British Serbian Units.

The tenth annual reunion dinner of the British Serbian Units Branch of the British Legion and of friends of Serbia will be held at the Lysbeth Hall, Soho-square, London, W.1, on Saturday, Dec. 5th, at 7 for 7.20 P.M. Tickets may be had from Miss Marx, 24, Melcombe-court, Dorset-square, London, N.W.1.

Medico-Legal Society.

At a meeting of this Society at 11, Chandos-street, W., at 8.30 P.M., on Thursday, Nov. 26th, Dr. Emanuel Miller will read a paper on the Social Aspects of Juvenile Delinquency.

The annual dinner has been postponed indefinitely.

Royal Sanitary Institute.

A sessional meeting of the institute will be held in the Town Hall, Sheffield, on Friday, Nov. 27th at 3 P.M., when a discussion on Cerebro-spinal Fever will be opened by Dr. H. J. Egerton Hutchins Williams. It will be followed at 5.30 P.M. by a discussion on Regional Smoke Abatement.

National Birth Control Association.

The first annual meeting of this association (with which is incorporated the Birth Control Investigation Committee) will be held at the Caxton Hall, Westminster, at 4.15 P.M., on Monday, Nov. 23rd, with Sir Thomas Horder in the chair. At 5 P.M., after the business meeting, Prof. K. J. Laski will speak on Birth Control and the Future of Democratic Society. Invitation cards may be had from the secretary at 26, Eccleston-street, London, S.W.1.

British Social Hygiene Council.

A Social Hygiene Congress is being organised in Sydney in April, 1932, by the Racial Hygiene Association of New South Wales, an organisation affiliated to the British Social Hygiene Council. The Council has been invited to nominate delegates to the Congress and to arrange for the contribution of papers, and the Executive Committee would like to learn the names of any members of the Council who will be present in Sydney at the time, and who would be willing to assist in the proceedings. For economical reasons the autumn meeting of the Council will not be held, so that communications should be made to the Executive Committee of the Council at Carteret House, London, S.W. 1.

Association of Bio-Physical Assistants.

At a representative meeting of biophysical assistants held in London on Nov. 4th an Association of Registered Bio-Physical Assistants was formed. Its objects are (1) to advance the study and practice of physical methods and make available to the public greater facilities for such methods through the medium of registered workers; (2) to promote the welfare of biophysical assistants in their professional capacity; (3) to coöperate as required with other recognised bodies for the achievement of the above ends. The acting organising secretary is Mrs. Vaughan Cowell, 30B, Wimpole-street, W.1.

Appointments

ILIFF, D. GRAHAM, M.R.C.S., L.R.C.P. Lond., has been appointed Resident Medical Officer at the Minehead and West Somerset Hospital.

MACKAY, JANET M., M.B., Ch.B. Edin., D.P.H., Asst. County M.O. for Wiltshire.

MALPAS, P., M.B., Ch.M. Liverp., F.R.C.S. Eng., Honorary Assistant Surgeon to Oxford-street Hospital, Liverpool.

Certifying Surgeons under the Factory and Workshop Acts: CARMICHAEL, L. G., M.B., Ch.B. Edin. (Galloway, Kirkcudbright); WEBB, P. J., M.B., Ch.B. N.U.I., D.P.H., Manchester North.

Vacancies

For further information refer to the Advertisement columns.

Aberdeen City Fever Hospital.—Jun. Res. M.O. £100.

Albert Dock Hospital, Connaught-road, E.—Res. M.O. At rate of £110.

Altrincham General Hospital.—Jun. H.S. At rate of £120.

Archway Hospital, Archway-road, Highgate, N.—Res. Med. Supt. £1000.

Bedford County Hospital.—1st H.S. At rate of £165.

Bethnal Green Hospital, Cambridge-road, E.—Res. Med. Supt. £1100

Birmingham, Little Bromwich Isolation Hospital.—Med. Supt. £1100.

Bolton Infirmary and Dispensary.—Asst. Res. M.O. £200.

Brighton, Royal Alexandra Hospital for Sick Children.—H.S. £100.

Brighton, Royal Sussex County Hospital.—Jun. Asst. Pathologist £300.

Cancer Hospital, Fulham-road, S.W.—H.S. At rate of £100.

Canterbury, Kent and Canterbury Hospital.—2 H.S.'s. Each at rate of £125.

Chelsea Hospital for Women, Arthur-street, S.W.—Jun. H.S. At rate of £100.

City of London Hospital for Diseases of Heart and Lungs, Victoria Park, E.—Res. M.O. £250. Also H.P. At rate of £100.

City of London Maternity Hospital, City-road, E.C.—Asst. Res. M.O. At rate of £80.

Croydon General Hospital.—Res. M.O. £200.

Dewsbury and District General Infirmary.—Sen. H.S. £200.

Doncaster Royal Infirmary.—H.S. to Cas. Dept. At rate of £175.

Dreadnought Hospital, Greenwich.—H.P. and H.S. Each at rate of £110.

East Ham Memorial Hospital, Shrewsbury-road, E.—Phys. to Skin Dept.

East London Hospital for Children, Shadwell, E.—Res. M.O. £200.

Elizabeth Garrett Anderson Hospital, Euston-road.—H.P. Obstet. Asst. and 2 H.S.'s. All at rate of £50. Also Clin. Assts.

Hampstead General and N.W. London Hospital, Haverstock Hill, N.W.—H.S. Also Cas. M.O. Each at rate of £100.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—Surgeon to Ear, Nose, and Throat Dept.

Hospital for Epilepsy and Paralysis, Maida Vale, W.—Clin. Asst. for Ear, Nose and Throat Dept.

Hospital for Sick Children, Great Ormond-street, W.C.—H.P. and H.S. Each at rate of £100.

Ilford, King George Hospital.—Half-time Pathologist. At rate of £350.

Jersey General Hospital and Poor-law Infirmary.—Res. M.O. £200.

Khartoum, Wellcome Tropical Research Laboratories.—Bacteriologist. £E.660.

King Edward Memorial Hospital, Ealing.—Hon. Dental Surgeon.

Lister Institute of Preventive Medicine, Chelsea Bridge-road, S.W.—Research Fellowship in Bacteriology. £500.

Liverpool Royal Children's Hospital.—Hon. Surgeon.

London Homœopathic Hospital, Great Ormond-street, W.C.—Res. M.O. £100.

London University.—Geoffrey Duveen Travelling Studentship in Oto-Rhino-Laryngology. £450.

Manchester Royal Infirmary.—Asst. Res. M.O. At rate of £150.

Manchester Royal Infirmary, Central Branch, Roby-street.—H.S. At rate of £100.

Manchester, St. Mary's Hospital.—H.S. at Whitworth Park Branch. At rate of £50.

***Mount Vernon Hospital, Northwood, Middlesex.*—Res. M.O. £250.**

National Hospital, Queen-square, W.C.—Hon. Asst. Radiologist.

Newark General Hospital.—Res. H.S. £175.

Newcastle General Hospital.—Part-time Med. Reg. and Surg. Reg. Each at rate of £250.

New Zealand, University of Otago and Dunedin Hospital.—Sen. Res. Surg. and Medical Officers. Each £500.

Oldham, Boundary Park Municipal Hospital.—Res. Asst. M.O. At rate of £200.

Oxford, Radcliffe Infirmary and County Hospital.—Hon. Phys., Hon. Asst. Phys., and Hon. Asst. Radiologist.

Plymouth Central Hospital.—Res. H.S. At rate of £150.

Plymouth, South Devon and East Cornwall Hospital.—Radium Officer. £600.

Preston, Biddulph Grange Orthopædic Hospital.—Sen. and Jun. H.S. At rate of £250 and £150 respectively.

Prison Medical Service.—M.O. £350.

Queen Charlotte's Maternity Hospital, Marylebone-road, N.W.—Res. Anæsthetist and Asst. Res. M.O. At rate of £100 and £80 respectively.

Queen's Hospital for Children, Hackney-road, E.—H.P. and Cas. O. Each at rate of £100.

Rotherham Hospital.—H.P. £180.

Royal Free Hospital, Gray's Inn-road, W.C.—Surg. Reg. £200. Res. Cas. O. £150. District Obstetric Asst. £100. Med. Reg. and Gynæcological Reg. Each at rate of £100. Also H.P.'s and H.S.'s to Special Depts.

Royal National Orthopædic Hospital, 234, Great Portland-street, W.—Med. Registrar. £150. Also Hon. Anæsthetist.

St. Thomas's Hospital Medical School, S.E.—Professor for the University Chair of Medicine. £2000.

Salisbury, General Infirmary.—Two H.S.'s. Each £150.

Salop, Cheshire Joint Sanatorium, Market Drayton.—H.P. £250.

Sheffield University.—Chair of Pathology.

Stoke-on-Trent, North Staffordshire Royal Infirmary.—Orthopædic Surgeon. £500. Also Asst. H.P. £125.

Taunton and Somerset Hospital.—M.O. At rate of £100.

West London Hospital, Hammersmith-road, W.—H.P. and H.S. to Special Depts. Each at rate of £100.

Westminster Hospital, Broad Sanctuary, S.W.—H.S. At rate of £102.

Wigan, Royal Albert Infirmary and Dispensary.—Res. Med. and Surg. O. and Reg. £250.

Willesden General Hospital, N.W.—Clin. Assts. for Out-patient Dept.

Wrexham and East Denbighshire War Memorial Hospital.—Two Res. H.S.'s. Each at rate of £150.

York County Hospital.—H.S. to Ear, Eye, Nose, and Throat Dept. £150.

The Chief Inspector of Factories announces vacant appointments for Certifying Factory Surgeons at Richmond (Yorks) and Burghead (Moray).

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Nov. 23rd.—8 P.M., ODONTOLOGY. Casual Communications. Mr. J. G. Turner: Backward Movement of Lower First Molars; Difficulties of Extracting Retained and Unerupted Teeth. Paper. Prof. L. S. Dudgeon: Vincent's Angina and Allied Affections of Mouth and Throat.

TUESDAY.—5 P.M., MEDICINE. Discussion: Nervous Dyspepsia. Speakers: Dr. Robert Hutchison, Dr. T. A. Ross, Dr. H. Bedingfield, and others.

WEDNESDAY.—5 P.M., COMPARATIVE MEDICINE. Discussion: Active Immunisation in Virus Disease. Opener: Dr. C. H. Andrewes, followed by Prof. W. J. Tulloch, Major G. W. Dunkin, Dr. S. P. Bedson, Mr. R. E. Glover, and others.

THURSDAY.—8.30 P.M., UROLOGY. A Clinical-Pathological meeting will be held.

FRIDAY.—5 P.M., DISEASE IN CHILDREN. (Cases at 4.30 P.M.). 8 P.M., EPIDEMIOLOGY AND STATE MEDICINE. Paper: Dr. E. W. Goodall: William Budd, a Forgotten Epidemiologist.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, Nov. 23rd.—8.30 P.M., Discussion on the Methods of Determining Liver Function and Their Value, to be introduced by Sir Humphry Rolleston and Prof. E. C. Dodds.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11, Chandos-street, Cavendish-square, W.

FRIDAY, Nov. 27th.—8.30 P.M., Dr. G. M. Findlay: Chemotherapy: New Remedies in the Treatment of Syphilis. A discussion will follow.

NORTH-WESTERN TUBERCULOSIS SOCIETY

THURSDAY, Nov. 26th.—4.15 P.M. (in the Anatomy Theatre, Manchester Medical School).—Mr. H. Morriston Davies: Surgery in Pulmonary Tuberculosis.

ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.

TUESDAY, Nov. 24th.—2 P.M. (at the B.M.A. House, Tavistock-square, W.C.), Quarterly General Meeting. 3 P.M., Sir Hubert Bond: Testimonied in his Own Bringingsforth (Maudsley lecture).

MEDICO-LEGAL SOCIETY.

THURSDAY, Nov. 26th.—8.30 P.M. (at 11, Chandos-street, W.), Dr. Emanuel Miller: Social Aspects of Juvenile Delinquency.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Nov. 23rd, to SATURDAY, Nov. 28th.—ST. MARK'S HOSPITAL, City-road, E.C. An all-day course in Proctology—demonstrations, lectures, operations.—CITY OF LONDON HOSPITAL FOR DISEASES OF THE HEART AND LUNGS, Victoria Park, E. Special post-graduate course in Diseases of the Chest. All day.—ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, Broad-street, W.C. Post-graduate Course in Ophthalmology. Clinical instruction every afternoon, 2.30 to 4.30 P.M. Special demonstrations at 5 P.M. on Mon., Wed., and Thurs.—MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square. Free lecture on Wed., at 4 P.M., by Sir Henry Gauvain on Bone and Joint Tuberculosis.—In connexion with the M.R.C.P. evening lectures: on Mon., Dr. W. J. Adie: Diseases of the Nervous System (2) at 8.30 P.M.—At 10, Bedford-square, W.C., at 8.30 P.M., on Wed. and Frid., Dr. Knyvett Gordon on Anæmia and Leukæmia, illustrated by epidiascope, followed by a laboratory demonstration.—ST. PAUL'S HOSPITAL, Endell-street, W.C. Wed., at 4.30 P.M., Cystoscopic demonstration by Mr. W. K. Irwin. No fee for attendance.—HOSPITAL FOR CONSUMPTION, Brompton, S.W. Mon., at 3 P.M., demonstration in the X ray Department by Dr. Stanley Melville. No fee for attendance.—LONDON LOCK HOSPITAL, 91, Dean-street, W. Post-graduate Course in Venereal Disease. Every afternoon.—Further particulars from the Fellowship of Medicine.

NATIONAL HOSPITAL, Queen-square, W.C.

MONDAY, Nov. 23rd.—2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Dr. Kinnier Wilson: Cerebral Tumours (2).

TUESDAY.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Dr. Critchley: The Parkinsonian Syndrome (2).

WEDNESDAY.—2 P.M., Dr. Martin: Out-patient Clinic.

THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Mr. Julian Taylor: Head Injuries (2).

FRIDAY.—2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Dr. Collier: Nervous Complications of Diabetes and Nephritis.

ST. JOHN'S HOSPITAL DERMATOLOGICAL SOCIETY.

WEDNESDAY, Nov. 25th.—4.15 P.M. (at St. John's Hospital, 49, Leicester-square, W.C.), Clinical Cases with special reference to the paper by Dr. R. T. Brain: Radon as a Substitute for Radium in Dermatology.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, Nov. 23rd.—10 A.M., Gynæcological Wards; Genito-urinary Operations; Skin Department. 11 A.M., Surgical Wards. 2 P.M., Surgical Wards; Medical, Surgical, Eye, and Gynæcological Out-patients.

TUESDAY.—9.30 A.M., Operations. 10 A.M., Medical Ward Demonstration; Dental Department. 11 A.M., Throat Operations. 11.30 A.M., Surgical Demonstration. 2 P.M., Operations; Medical, Surgical, and Throat Out-patients.

WEDNESDAY.—10 A.M., Medical Wards; Children's Medical Out-patients. 2 P.M., Medical, Surgical, and Eye Out-patients. 2.30 P.M., Gynæcological Operations. 4.45 P.M., Venereal Diseases Demonstration.

THURSDAY.—10 A.M., Neurological Department. 11.30 A.M., Fracture Demonstration. 2 P.M., Medical, Surgical, Eye, and Genito-urinary Out-patients. 2.30 P.M., Operations.

FRIDAY.—10 A.M., Medical Wards, Skin Department, Dental Department. 2 P.M., Medical, Surgical, and Throat Out-patients. 2.30 P.M., Operations.

SATURDAY.—9 A.M., Throat Operations. 10 A.M., Medical Wards. Surgical Out-patients: Children's Medical Out-patients.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL, University-street, W.C.

TUESDAY, Nov. 24th.—5.15 P.M., Dr. R. T. Grant: Pathology of Endocarditis.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL, Denmark-hill, S.E.

THURSDAY, Nov. 26th.—9 P.M., Dr. M. S. Thomson: Skin Diseases of Childhood.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.

TUESDAY, Nov. 24th.—3.15 P.M., Mr. Barrington-Ward: After-treatment of Abdominal Operations.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ouseley-road, Balham, S.W.

WEDNESDAY, Nov. 25th.—4 P.M., Dr. C. E. Lakin: Demonstration of Medical Cases.

ST. MARK'S HOSPITAL, City-road, E.C.

THURSDAY, Nov. 26th.—4.30 P.M., Sir Charles Gordon-Watson: Diagnosis and Treatment of Carcinoma of the Colon.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.

WEDNESDAY, Nov. 25th.—4 P.M., Dr. H. C. Visick: Anæsthetics in Practice.

HOSPITAL FOR EPILEPSY AND PARALYSIS, Maida Vale, W.

THURSDAY, Nov. 26th.—3 P.M., Clinical meeting for medical practitioners. Dr. W. G. Wyllie: Diplegia in Childhood.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, Nov. 24th.—5 P.M., Dr. H. W. Barber: Immunity and Anaphylaxis.

THURSDAY.—5 P.M., Dr. W. N. Goldsmith: Pigmentation of the Skin.

CHARING CROSS HOSPITAL MEDICAL SCHOOL.

THURSDAY, Nov. 26th.—4.30 P.M., Sir Almroth Wright: Immunity: The Old Doctrine and the New. (Huxley Lecture.)

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, Nov. 27th.—4 P.M., Mr. N. Rankin: Acute Affections of the Pharynx.

NATIONAL COUNCIL FOR MENTAL HYGIENE.

THURSDAY, Nov. 26th.—5.15 P.M. (at 11, Chandos-street, Cavendish-square, W.), Dr. Doris Odlum: Marriage and Parenthood.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.

WEDNESDAY, Nov. 25th.—4 P.M., Mr. David Lees: Venereal Diseases in City Life.

THURSDAY.—4 P.M., Mrs. Marie C. Stopes, D.Sc.: Some Practical Points on Contraceptive Technique.

ANCOATS HOSPITAL, Manchester.

THURSDAY, Nov. 26th.—11 A.M., Mr. E. E. Hughes: Clinical Demonstration. 4.15 P.M., Dr. N. Kletz: Affections of the Colon.

MANCHESTER ROYAL INFIRMARY.

TUESDAY, Nov. 24th.—4.15 P.M., Dr. D. E. Core: Functional Nervous Disorders in Childhood.

FRIDAY.—4.15 P.M., Mr. A. H. Burgess: Demonstration of Surgical Cases.

MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL, Elizabeth-street.

WEDNESDAY, Nov. 25th.—4.30 P.M., Mr. F. H. Scotson: The Investigation of a Renal Case. (With demonstration.)

MANCHESTER HOSPITAL FOR CONSUMPTION, Hardman-street, Deansgate.

WEDNESDAY, Nov. 25th.—4.30 P.M., Dr. G. V. Ashcroft: Cough.

UNIVERSITY OF SHEFFIELD.

FRIDAY, Nov. 27th.—3.30 P.M. (at the Royal Infirmary), Dr. R. Platt: Asthma.

ROYAL MATERNITY AND WOMEN'S HOSPITAL, Glasgow.

WEDNESDAY, Nov. 25th.—4.15 P.M., Prof. J. M. Munro Kerr: Obstetrical Cases.

THE FACULTY HALL, St. Vincent-street, Glasgow.

TUESDAY, Nov. 24th.—4 P.M., Dr. A. J. Ballantyne: Diagnostic Problems in Ophthalmology.

NOTES, COMMENTS, AND ABSTRACTS

A FORTNIGHT IN NORTH AMERICA.

By A. LAWRENCE ABEL, M.S., F.R.C.S.,

SURGEON TO THE PRINCESS BEATRICE HOSPITAL AND THE GORDON HOSPITAL FOR RECTAL DISEASES; ASSISTANT SURGEON TO THE CANCER HOSPITAL.

THE Inter-State Postgraduate Medical Association of North America is the largest post-graduate institution of its kind in the world. Each year it holds meetings in various parts of the United States, and its annual congress, held in one of the largest cities, is attended by over 5000 medical men of all grades of the profession and from all parts of the United States and Canada. I was much honoured, therefore, to receive an invitation to attend this meeting of the International Assembly, and to speak on the Modern Treatment of Cancer of the Rectum and show my cinematograph film of the abdomino-perineal (Miles') operation.

This invitation, when accepted, was quickly followed by others. In New York I spoke on Gas Oxygen Anæsthesia from the Surgeon's Viewpoint, to the Anæsthetic Section of the American College of Surgeons. The Secretary-General of the Anæsthetic Association, Dr. F. H. McMechan, and his wife, are both well known to anæsthetists and surgeons in this country. Although almost a complete invalid Dr. McMechan has organised the modern anæsthetists of the United States into an active body of men and women, most of whom are enthusiastic workers with gas and oxygen. Throughout the United States anæsthetics are mainly administered by nurses, but thanks to Dr. McMechan and his associates the medical profession are taking a keener interest in anæsthesia and the many problems associated with it, and indiscriminate use of chloroform and ether is gradually giving place to the safer gas-and-oxygen methods.

While in New York I was allowed to attend the American College of Surgeons meeting already reported in these columns.[1] Every hospital in New York had arranged clinics and operating sessions, and throughout the day addresses were delivered by men of world-wide reputation. A large number of talking and silent medical films were shown.

An over-night trip carried me to Boston, where I was the guest of Dr. Edwin Parker Hayden. He took me over the Massachusetts General Hospital and I spoke in the amphitheatre where ether was first used as a general anæsthetic. Some 200 members and associates of the staff attended. I was then taken round the city and shown the new buildings of the Harvard University, laid out in beautiful surroundings, as separate colleges on the lines of Oxford and Cambridge. From here an 18 hours' journey along the north shores of Lake Erie took me to Chicago—where I saw no sign of machine guns or racketeers—and two hours north of Chicago I reached my real destination, Milwaukee, Wisconsin, where the annual meeting of the Inter-State Post-Graduate Assembly was held in the Auditorium from Oct. 19th to 23rd.

Meeting at Milwaukee.

Milwaukee is a typical city of the Middle West. It is a large, clean, manufacturing town of nearly one million inhabitants, surrounded by the wooded state of Wisconsin, with innumerable scattered lakes. The Auditorium is comparable to Olympia. The part of the ground floor devoted to the congress seats over 10,000 people, the remainder accommodating ante-rooms for speakers, patients, officials, and reporters. The basement was devoted to an exhibition of drugs, medical and surgical appliances, and the like. Side rooms were occupied by representatives of various universities, hospitals, and clinics, and selections of their work were demonstrated by pictures, pathological specimens, radiograms, lantern slides, and cinematograph films. These were on view continuously and were changed daily; in themselves they formed a symposium of medical, surgical, and special methods of diagnosis and treatment.

The meeting provided the most concentrated post-graduate instruction that it is possible to arrange in five days. The sessions began at 7.30 A.M. with "diagnostic clinics" and a large audience attended even at that early hour. Each speaker had three or four cases for exhibition on the platform. By means of a microphone and loud-speakers he described the history, detailed the physical examination, and then proceeded to discuss the diagnosis and treatment of each case. The speakers were well-known professors and each was allowed from 35 to 45 minutes. As they mostly came from long distances they had had no previous chance of examining the patient, and the clinics proved highly successful and instructive. These diagnostic clinics continued until about 11 o'clock. The remainder of the day was devoted to addresses, each day or part of a day being devoted to a consideration of a particular system or subject. The day's work ended about 10 P.M.

Lunch and dinner intermissions were from 12 to 1 and 6 to 7 P.M. respectively, and each session included half an hour's interval for the viewing of exhibits. Between addresses the audience rose in their places for a moment or two, sometimes singing a song, such as "Swanee River" or "Marching thro' Georgia."

In all there were 119 clinics and addresses. Of these, the following contributed: Mayo Clinic, 19; Lahey Clinic and Harvard Medical School, Boston, 12; Crile's Cleveland Clinic, 9; New York, 9; Johns Hopkins Hospital, Baltimore, 7; Chicago, 6; Toronto, 4; Montreal, 3; London, England, 1.

Both Dr. William and Dr. Charles Mayo addressed the congress on general lines. Of their associates Dr. Waltman Walters, associate professor of surgery at the Mayo Clinic, emphasised the benefits of partial gastrectomy for gastric ulcers which did not respond quickly to medical treatment. He favoured pyloroplasty as a useful alternative to gastro-enterostomy in duodenal ulcer. Dr. Fred W. Rankin, associate professor of surgery at the Mayo Clinic, advocated lumbar sympathectomy for Hirschsprung's disease and also reported a high rate of cure in radical operations for carcinoma of the stomach. Dr. Paul A. O'Leary, professor of dermatology at the Mayo Clinic, emphasised the need for prolonged treatment of syphilis by heavy metals. Dr. Frank H. Lahey, director of the Lahey Clinic, Boston, emphasised the need for early removal of the diseased gall-bladder; he also advised large doses of iodine before and after thyroidectomy, which should be done early for cases of thyroiditis of all types. Dr. Edmond M. Eberts, professor of surgery at Montreal, gave an account of his researches on Paget's disease of the breast, and held two highly successful surgical diagnostic clinics. Canada was also represented by Dr. F. N. G. Starr, professor of surgery at Toronto, who emphasised the need for radical surgery in cancer of the stomach. Dr. George W. Crile, of Cleveland, spoke of the relationship between the thyroid and adrenal glands, hyperacidity and peptic ulcer, and the relationship between neuro-circulatory asthenia and diabetes. He detailed his technique of denervation of the adrenal glands and its curative effect upon soldier's heart, peptic ulcer and hyperacidity, and its influence over diabetes. He also stated that as a result of mixing cerebral lipoids with synthetic proteins living cells had been formed from non-living matter. I was the only European representative. I outlined the pathology of the spread of cancer of the rectum and emphasised the need for the most thorough radical abdomino-perineal operation. I also demonstrated

[1] THE LANCET, Nov. 7th, p. 1037.

the operation and after-treatment by means of my cinematograph film, reporting an immediate mortality of less than 8 per cent. and quoting Mr. Ernest Miles's figures showing a 79 per cent. five-years' cure rate.

Side Shows.

While the doctors were attending the congress the wives were catered for by an energetic ladies' committee. Trips were arranged to places of interest in the surrounding country, convalescent homes were visited, and the mass-production kitchens of local hospitals were thrown open for inspection. Perhaps the most interesting visit was to A. O. Smith's factory, where, apart from other activities, are made the chassis of all American motor-cars, except Fords. At one end of the shop a plain sheet of steel is fed on to a machine and at the other a completely assembled and painted motor chassis makes its appearance. The whole process can be watched in every detail from a raised balcony. Attached to this gigantic works is a new research department built entirely of steel and glass. This enormous building receives no outside air through the windows, the whole structure being artificially ventilated. No direct factory work is carried out here, but a staff of 48 qualified scientists are engaged purely in research into the properties of metals, wood, paint, and so on.

After being interviewed by reporters, my first public function in Milwaukee was to speak to the Rotary Club, at a luncheon. Here I had an enthusiastic reception from some 400 members, who expected me to know all about the political and financial situation in Europe, to give my views on the depression, to predict an optimistic future for the world at large, and North America and England in particular. Early that evening I had to broadcast similar views, statements concerning the diagnosis and treatment of cancer, and information about the general work of the Post-Graduate Assembly. Later that evening the Surgical Club of Milwaukee gave a hilarious dinner to the surgical visitors, including Dr. Charles Mayo.

The Mayo Clinic.

"Dr. Charlie," as everyone calls him, took me with him overnight on the Wednesday to Rochester, Minnesota, where we arrived at 7 o'clock on Thursday morning. He took me in his car to his beautiful house, some four miles out of Rochester. He lives on a slight elevation, looking out over the beautiful Minnesota hills. Through the valley in his park runs a tributary of the Mississippi river, with a number of isiands scattered about united by small suspension bridges. Every vivid autumn tint of red and brown and gold on the trees made a never-to-be-forgotten picture as seen from the roof of his house. After breakfast he said: "Now we must start the day right," and he sat down to his electric organ and played Chaminade's "Autumn." At about 8 o'clock he took me round his estate, showing me his greenhouses and hothouses; then to his field laboratory and experimental laboratories, where animals are kept under the most ideal conditions, and then into the town of Rochester to the famous Mayo Clinic.

This is an enormous building capable of dealing with hundreds of patients in the course of a single day. The busy day is usually Monday, when anything from 500 to 750 new patients make their appearance, the total dealt with in the year being about 90,000. Scores of patients can be accommodated at any one time in cubicles set aside for test-meals; on another floor for blood tests; on another floor for urinanalysis. There are separate floors for different types of X rays, chest, gastro-intestinal tract, barium enemas, and so on. Huge waiting-halls, lounges, reading-rooms, writing-rooms, rest-rooms, and lecture theatres are available for the use of patients and staff, in addition to innumerable staff consulting-rooms and private offices. One large room is devoted to accommodating the honorary degrees and diplomas which have been presented to Dr. William and Dr. Charles Mayo, and the array of gowns conferred upon these two famous men is a wonderful sight.

Many acres of the basement are taken up with records, and a compressed air system extends from the central record office to the various hospitals in the town which are attached to the Clinic. Any doctor requiring a patient's previous case-sheet or history telephones to the record department, the notes are put into the compressed air system, and within a few seconds have arrived at the place where the doctor is working, perhaps two miles away.

In addition to ordinary records, each case is concentrated on to one small card. By means of a large number of small squares punched out in this card all salient points of age, condition, operation, after-history, &c., are recorded. Hundreds or thousands of these cards can be placed in a machine which automatically sorts them out in a few seconds so that any required data are rapidly ascertained. As an example, American insurance companies requested the Mayo Foundation to report on longevity following gastro-enterostomy for duodenal ulcer. The machine analysed some tens of thousands of records in a very short time and showed that the expectation of life is longer in these cases than in normal persons!

Associated with the Clinic are a group of hospitals with some 800 or 900 beds. The Kahler Hotel is partly hotel and partly hospital. Patients are investigated for a few days in the Clinic, staying in the hotel portion of the Kahler; then, if operation proves necessary, they move to the upper floors where a series of operating theatres are situated, this portion of the Kahler being run as a private hospital. All tissues removed at operation are subjected to immediate "frozen" microscopical section and only if any doubt exists is any further biopsy performed. By this means the surgeon sees the pathological section immediately after the operation and to a waiting stenographer dictates the details of his operation and the microscopical findings.

A feature of the work of the 460 doctors attached to this wonderful organisation is the weekly staff meeting. All rare, interesting, or difficult cases are described and discussed. All post-mortem specimens are shown on the screen, and medical literature bearing on cases is produced and reports compared. One is struck by the way the interests of the patient are considered first, last, and all the time, and by the harmony with which the vast body of medical men work together, blended by the remarkable personalities of the Mayos.

Further Travels.

Late that night Dr. William Mayo took me back to Milwaukee, where we arrived in time for the 7.30 A.M. session of the final day of the Congress.

The whole medical assembly and its arrangements were a model of organisation, thanks mainly to the managing director, Dr. William B. Peck, who personally conducts several hundred American doctors to Europe each year. His executive secretary was Dr. Edwin Henes, Junior, of Milwaukee, and the Speaker of the Assembly who arranged the programmes without a hitch was Dr. George V. I. Brown, also of Milwaukee.

The Assembly terminated with the fifteenth annual banquet, in the Hotel Schroeder, Milwaukee, when over 1000 guests were present.

The midnight train carried me to Toledo, Ohio, on the shores of Lake Erie, where I spent the morning with Dr. McKesson, who is, perhaps, the best-known anæsthetist in the United States. Here I saw laparotomies performed under pure gas-and-oxygen anæsthesia administered by McKesson, who uses nothing but nitrous oxide oxygen for all and every type of surgical operation. Later, he took me round his own factory where his numerous instruments are made.

The following day, Sunday, was spent on the banks of Niagara River, and on the next day I fulfilled

my invitation to speak at Toronto. There I was welcomed by Prof. W. E. Gallie, and his band of keen assistants, and I had an opportunity of seeing his work in the General Hospital and in the large, magnificently equipped private block. End-results of cases of lumbar sympathectomy, and cases of repair by living fascial grafts were among many of uncommon interest.

Dr. Gilbert Parker, the Secretary of the Academy of Medicine, had arranged an enthusiastic audience of some 250, to whom I spoke and showed my film. No less hearty was the hospitality extended to me the following day by Dr. Edward Archibald, professor of surgery in Montreal, and his associates, amongst whom were Dr. Scrimgeour, Dr. Miller, and Dr. William Moffatt. The main lecture hall of McGill University was placed at my disposal for a late afternoon meeting, and I was honoured by the presence of a large audience.

As in the United States, so in Canada, everyone I met went out of his way to show me everything of interest and to extend every possible, often overwhelming, hospitality. The memory of these 14 hectic days in North America will amply repay the 10,000 miles of travel, and the inspiration received from the English-speaking giants of our profession beyond the seas will last a lifetime.

DETECTION AND MEASUREMENT OF DEAFNESS IN SCHOOL-CHILDREN.

SOME two years ago, when reviewing an important book on "Speech and Hearing," by Dr. Harvey Fletcher, director of acoustical research to the Bell Telephone Laboratories,[1] we remarked that the audiometer would probably be in general use by otologists in the near future, and commented on the value of the gramophone type of audiometer for testing large groups to discover those whose hearing is deficient for speech, mentioning that, at its trial in a school in New York City, 40 pupils could be tested at a time and about 100 in an hour. We are glad to note that this instrument has been adopted in this country, for Dr. G. P. Crowden and Dr. A. H. Gale have reported [2] that it has been employed in the examination of some 1500 children in the borough of Hornsey. The type of apparatus employed was the 4—A type gramophone audiometer, supplied by the Western Electric Company, and the outcome of extended experiments and practical trials by the technical staff of the Bell Telephone Laboratories. It consists of a gramophone with a magnetic pick-up, by which the sound is transmitted to a number of single headphones. The unit of intensity adopted is the *decibel*, which is the smallest change perceptible to the normal ear; the normal, or zero, level was determined by preliminary experiments in America, and the intensity of the voice sounds is graded down in 12 steps of three decibels each from 30 above to three below the zero level. On the record employed, each step consists of four series of three figures spoken in the ordinary voice. The normal of hearing doubtless varies within physiological limits, but it is found that children with a loss of nine or more decibels usually have some abnormal condition. Each ear is tested separately, and children who show this degree of loss are tested again to eliminate nervousness. The audiometer is a far more delicate test than the watch or the whisper; it examines the hearing for ordinary spoken words, which is the important function to be tested, and it eliminates the error due to lip-reading. It is not intended for use by the medical officer at his routine examination, but may be undertaken by the school nurse or teacher, and the children showing defective hearing set aside for his examination. With a little care on the part of the examiner to avoid haste and to interest the children, it is a thoroughly reliable method of testing a large number of children in a uniform manner. The authorities concerned should seriously consider its general adoption.

[1] THE LANCET, 1929, ii., 615.
[2] Med. Officer, Sept. 13th, 1930, p. 113.

HOUSE APPOINTMENTS AT L.C.C. HOSPITALS.

THE question of the shortage of house physicians and house surgeons in London County Council general hospitals was raised at a recent meeting of the Council by Dr. C. W. Brook, who asked the chairman of the central public health committee: (1) whether any difficulty had been experienced in securing the services of suitable registered medical practitioners to act in both capacities; (2) whether the monetary remuneration attached to these posts was only £80 per annum; (3) whether, in view of the fact that many voluntary hospitals with established reputations were paying salaries of at least £150 to £200 per annum to members of their junior medical staffs, an early increase in the salaries paid to house physicians and house surgeons at general hospitals would be considered; and (4) what was the remuneration offered and paid to a locum tenens acting as house physician or house surgeon pending the filling of any vacancy that might arise?

Dr. Barrie Lambert (chairman of the committee) answered "Yes" to the first question. She said that the remuneration was £80 a year, plus full residential emoluments, and that a substantial amount of time is allowed weekly for post-graduate study. The scheme for the appointment of residents in the Council's hospitals is, she said, experimental, and was devised in order to provide hospital experience for those who are newly qualified and had held no previous hospital appointment. It has not yet been in operation long enough to judge whether or not the appointments meet a need. Posts in voluntary hospitals, where the duties are analogous to those of house surgeon and house physician in the Council's hospitals, usually carry only a small salary, often lower than £80 a year. The posts in the Council's hospitals which correspond to those mentioned in question 3 are junior assistant medical officers with a salary of £250 a year, together with full residential emoluments. No special rate of pay, said Dr. Lambert, has been fixed for a locum tenens. In one case only has it been necessary to engage a locum tenens for a house physician or house surgeon, and in this case the salary was £6 6*s.* a week, plus full residential emoluments.

THE HORSE IN WAR.

AT one period in France the British Expeditionary Force possessed roughly 475,000 horses and mules, and the total wastage from death, destruction, and missing amounted to approximately 250,000 up to the end of December, 1918. On the whole more than 750,000 animals took part in the war, and there is a case to be made out for the statement that the inability of Germany to acquire suitable horses—as exemplified by the retreat of her Grand Army with mixed teams of oxen and horses—was responsible for her failure. A pamphlet written by Major-General Sir John Moore,[1] late Director of Veterinary Services to the British Expeditionary Force in France, tells the story of the war service of the horse. A chapter on sickness and wastage describes the diseases from which horses in France suffered, and another on veterinary services gives an account of the hospitals and ambulances and their work. The story is of great interest not only to those who like horses but also to students of war. It ends with an appeal that equine members of our fighting forces should have their own memorial in endowed chairs or wards in recognised veterinary teaching institutions—and particularly at the Royal Veterinary College in Camden Town, where a special fund has been opened for the purpose. The proceeds of the sale of the pamphlet are dedicated to this excellent project.

[1] Our Servant the Horse. H. and W. Brown, 20, Fulham-road, S.W.3. 1931. Pp. 32.